Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 195,1 (2024)	19-Sep-2023

Q(β^-)=−2141 *3*; S(n)=8196.99 *6*; S(p)=8008.4 *12*; Q(α)=83.9 *10* 2021Wa16
S(2n)=14651.38 *10*, S(2p)=14817.1 *11* (2021Wa16).
Additional information 1.

^{162}Dy Levels

Based on data from ^{162}Tb β^- decay, ^{162}Ho ε decay (15 min and 67 min), ^{161}Dy(n,γ), ^{162}Dy(n,n′γ), ^{160}Gd(α,2nγ), Coul. ex., ^{162}Dy(d,d′), ^{163}Dy(d,t), ^{161}Dy(d,p), ^{164}Dy(p,t), ^{160}Dy(t,p), ^{162}Dy(γ,γ′), muonic atoms, ^{166}Er(d,^{6}Li), ^{161}Dy(α,^{3}He), ^{163}Dy(^{3}He,α), ^{163}Dy(^{3}He,$\alpha\gamma$), ^{161}Dy(^{61}Ni,^{60}Niγ), ^{118}Sn(^{162}Dy,^{162}Dy′γ), ^{160}Gd(^{7}Li,p4nγ), and ^{160}Gd(^{37}Cl,Xγ).

A number of levels above 1.9 MeV have been proposed from (n,n′γ) but are not listed here. For a discussion, see the (n,n′γ) data set. Several levels seen only in (p,t) and (^{3}He,α) are not listed here. See those data sets for this information.

Calculation of isomer shift: 1973Me08.

Measured Coulomb displacement energies: 1983Ja03.

The following theory or model articles may be of interest:

Discussions of wavefunctions:

γ-vibrational state and bands − 1965Be40, 1988Ja12; octupole states and bands − 1972Ne02, 1988Ba17; 0$^+$ states − 1973Ab06, 1975Bi13, 1981Bi14; 3$^-$ at 1770 and 2$^-$ at 1866 − 1972Ne21; 4$^+$ at 1536, 1$^+$ at 1745, 3$^-$ at 1770, and 2$^-$ at 1866 − 1973We10; 5$^-$ at 1485 − 1980Ku15; 4$^+$ at 1535 − 1986Ne06; 1$^+$ states from 2.5 to 3.5 MeV − 1989Su15; low-K bands − 1988Ch26.

1996So19 and 1997So26 report the results of quasiparticle- phonon model (QPM) calculations of the microscopic make-up of the configurations of the nonrotational states in a number of doubly even nuclides, including ^{162}Dy. These results for ^{162}Dy are generally accepted here.

Discussions of other items:

Calculated energies of bandheads for γ, β, and octupole bands − 1965So04; energies and B(E3) for octupole states − 1970Ne02; B(E2) ratios − 1972We05; level energies in five bands − 1974Be69; δ^2 from IBA model − 1981Wa28, 1987Li11; Δ and B(E2) values − 1993Mi18; B(E1), B(E2), B(E3) for three levels − 1993So20.

Cross Reference (XREF) Flags

A	^{162}Tb β^- decay	J	^{163}Dy(^{3}He,$\alpha\gamma$)	S	^{164}Dy(p,t)
B	^{162}Ho ε decay (15.0 min)	K	^{161}Dy(^{61}Ni,^{60}Niγ)	T	^{166}Er(d,^{6}Li)
C	^{162}Ho ε decay (67.0 min)	L	muonic atom: pionic atom	U	^{161}Dy(α,^{3}He)
D	^{162}Er 2ε decay	M	Coulomb excitation	V	^{163}Dy(^{3}He,α)
E	^{161}Dy(n,γ) E=th	N	^{162}Dy(γ,γ′)	W	^{160}Gd(^{7}Li,p4nγ)
F	^{161}Dy(n,γ) E=2 keV	O	^{160}Dy(t,p)	X	^{118}Sn(^{162}Dy,^{162}Dy′γ)
G	^{161}Dy(n,γ) E=24 keV	P	^{161}Dy(d,p)	Y	^{160}Gd(^{37}Cl,Xγ)
H	^{162}Dy(n,n′γ)	Q	^{162}Dy(d,d′)	Z	^{160}Gd(^{9}Be,α3nγ)
I	^{160}Gd(α,2nγ)	R	^{163}Dy(d,t)		

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$	XREF	Comments
0.0[&]	0$^+$	stable	ABC EFGHIJKLMNOPQRSTUVWXYZ	Δ<r^2> data are available: for ^{160}Dy-^{162}Dy, Δ<r^2>≈0.13 fm^2 (1985Ne09, read from plot by evaluator) and λ=0.129 *8* fm^2 (1990Wa25) where Δ<r^2>≈λ. For ^{162}Dy-^{164}Dy, Δ<r^2> ≈0.12 fm^2 (1985Ne09) and λ=0.119 fm^2. See also 1970Va21 and 1978Ho09. Other isotope shift data: 1968De36, 1973Le16, and 1982Cl04. In an evaluation of nuclear rms charge radii, 2013An02 report <r^2>$^{1/2}$=5.2074 fm *172*.
80.661[&] *3*	2$^+$	2.19 ns *2*	ABC EFGHIJKLMNOPQRSTUVWXYZ	μ=+0.686 *28*

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
				J^{π}: from E2 γ to 0^+ level. $T_{1/2}$: weighted average of: 2.25 ns *7* (1963Li04), from ^{162}Ho ε decay (67 min); and 2.19 ns *3* (1967Ku07) and 2.17 ns *4*, both from Coul. ex. Others: 3.05 ns *20* (1973Ch28) from ^{162}Ho (67 min) decay and 2.22 ns (1959Bi10) and 2.0 ns *2* (1967As03) both from Coul. ex. For comparison, the evaluation of 1987Ra01 gives 2.19 ns *3*, which is based on the B(E2) as well as the direct half-life measurements. μ: from the compilation of 2014StZZ and based on g=0.343 *14* (1970Be36). Others: g=0.362 *24* (1967Ku07) and 0.37 *4* (1967He15). The compilation by 2005St24 lists μ=+0.69 *3*.
265.664[&] *3*	4^+	0.132 ns *5*	ABC EFGHIJKLM OPQRSTUVWXYZ	μ=+1.14 *12*; B(E4)↑=0.07 *5* J^{π}: from E2 γ to 2^+ level and expected gs band structure. $T_{1/2}$: weighted average of 0.132 ns *8* (1963Li04) from ^{162}Ho (67 min) decay and 0.132 ns *6* (1978Hu03) from Coul. ex. $T_{1/2}$: from B(E2)($2^+\rightarrow4^+$)=2.68 *13* (Coul. ex.), the computed half-life is 0.134 ns *7*. μ: computed by the evaluator from g=+0.285 *31*, from IPAC in (α,2nγ) (1997Al04). This value is also listed in the compilation by 2014StZZ. B(E4)↑: From Coul. ex.
548.520[&] *3*	6^+	18.4 ps *10*	C E HIJKLM OPQRSTUVWXYZ	μ=+2.18 *11* J^{π}: from E2 γ to 4^+ level and expected gs band structure. $T_{1/2}$: from Coul. ex. (1978Hu03). $T_{1/2}$: from B(E2)($4^+\rightarrow6^+$)=2.10 *15* (Coul. ex.), the computed half-life is 19.9 ps *15*. μ: computed by the evaluator from g=+0.364 *18* in Coul. ex. (1999Br43). Other: +1.68 *18*, from g=+0.28 *3*, from IPAC in (α,2nγ) (1997Al04). The compilation by 2014StZZ lists μ=+2.18 *11*, together with +1.8 *2*.
888.161[a] *3*	2^+	1.97 ps *9*	ABC EFGHIJ M OPQRS WX Z	μ=0.92 *6* J^{π}: from E2 γ to 0^+ level. Excited in Coul. ex. $T_{1/2}$: computed from B(E2)↑=0.122 *5* (Coul. ex.) and the adopted γ branching. Other: 0.74 ps<$T_{1/2}$<3.24 ps (2017Ap01, (n,γ) E=th). μ: computed by the evaluator from g=0.46 *3*, from 1999Br43 (Coul. ex.). This value is also given in the compilation by 2014StZZ.
921.28[&] *5*	8^+	4.2 ps *2*	HIJKLM P R UVWXYZ	μ=+3.05 *16* J^{π}: from population in Coul. ex., γ to 6^+ level, and expected gs band structure. $T_{1/2}$: weighted average of 4.1 ps *3* (1977Ke06), 4.6 ps *3* (1978Hu03), and 4.1 ps *2* (1979Gu15) all from Coul. ex. $T_{1/2}$: from B(E2)(6+$\rightarrow8^+$)=1.96 *16* (Coul. ex.), the computed half-life is 5.1 ps *4*. μ: computed by the evaluator from g=+0.381 *20* in Coul. ex. (1999Br43). Other: +3.4 *10*, from g=+0.45 *12*, from IPAC in (α,2nγ) (1997Al04). The compilation by 2014StZZ lists μ=+3.05 *16* as well as +3.4 *10*.
962.940[b] *3*	3^+		A C EFGHIJK M P WX Z	J^{π}: from γ to $K^{\pi}=2^+$ bandhead, γ to 4^+ level, and expected band structure. $T_{1/2}$: 0.25 ps<$T_{1/2}$<2.83 ps (2017Ap01, (n,γ) E=th).

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J$^{\pi}$[#]	$T_{1/2}$	XREF	Comments
1060.991[a] *3*	4$^+$		BC EFGHI K M OPQ X Z	J$^{\pi}$: from γ's to 2$^+$ and 6$^+$ levels, M1 component in the γ to 4$^+$ level. $T_{1/2}$: 0.491 ps<$T_{1/2}$<2.20 ps (2017Ap01, (n,γ) E=th).
1148.232[d] *3*	2$^-$	0.21 ns *4*	A C EFGHI P R X Z	J$^{\pi}$: E1 γ's to 2$^+$ and 3$^+$ levels indicate 2$^-$ or 3$^-$. log *ft*=4.95 from the 1$^-$ gs of ^{162}Tb rules out 3$^-$. This allowed-unhindered β^- transition involves the (ν 5/2[523]) and (π 7/2[523]) orbitals. It thus establishes the two-quasiparticle state with configuration=(π 7/2[523])-(π 3/2[411]) as at least a large part of the configuration of this 2$^-$ band. This supports the interpretation of this level as being the bandhead of a K^{π}=2$^-$ octupole vibration, since this two-quasiparticle state is expected to be the dominant component of the 2$^-$ octupole vibration in ^{162}Dy (1996So19). $T_{1/2}$: from ^{162}Tb β^- decay (1968Se02).
1182.763[b] *3*	5$^+$		C E HI K P WX Z	J$^{\pi}$: M1 component in γ to 6$^+$ level and E2 γ to 3$^+$ level.
1210.089[c] *3*	3$^-$		A C EFGHI M OPQRS WX Z	B(E3)↑=0.104 *7* J$^{\pi}$: from E1 γ's to 2$^+$ and 4$^+$ levels. B(E3)↑: from Coul. ex.
1275.772[f] *4*	1$^-$	20 fs *4*	AB EFGHIJ N PQR W	XREF: Q(1279). J$^{\pi}$: from E1 γ's to 0$^+$ and 2$^+$ levels. $T_{1/2}$: from (γ,γ'). See the comment there about the reliability of this value. Other: <0.15 ps (2017Ap01, (n,γ) E=th).
1297.006[d] *3*	4$^-$		C EFGHI K P R WX Z	J$^{\pi}$: from E1 to 3$^+$ level and γ to 5$^+$ level.
1324.465[a] *3*	6$^+$		C E HI K M PQ WX Z	XREF: Q(1329). J$^{\pi}$: from γ's to 4$^+$ and 6$^+$ levels, authors' interpretation of (d,d') angular distribution data, and expected band structure.
1357.928[f] *3*	3$^-$	<0.15 ps	A EFGHIJ M OPQR UV	B(E3)↑=0.033 *11* XREF: M(1357.4)U(1363)V(1364). J$^{\pi}$: from E1 γ to 4$^+$ level and γ to 2$^+$ level. $T_{1/2}$: from 2017Ap01 ((n,γ) E=th). B(E3)↑: from Coul. ex.
1375.08[&] *7*	10$^+$	1.57 ps *10*	IJKLM WXY	μ=+3.6 *4* J$^{\pi}$: from population in Coul. ex., γ to 8$^+$ level, and expected gs band structure. $T_{1/2}$: from Coul. ex. (1977Ke06). Other: 1.5 ps *1* (1979Gu15) from Coul. ex. $T_{1/2}$: from B(E2)(8$^+$→10$^+$)=2.65 *21* (Coul. ex.), the computed half-life is 1.34 ps *11*. μ: From 1999Br43 (Coul. ex.). This value is also listed in the compilation by 2014StZZ.
1390.513[c] *3*	5$^-$		C E HI M PQR VW Z	XREF: V(1397)Z(1387.5). J$^{\pi}$: from E1 γ to 4$^+$ level, γ to 6$^+$ level, and interpretation of (d,d') reaction data.
1400.26[g] *6*	0$^+$		B E H OP RS	XREF: O(1397)S(1398.9). J$^{\pi}$: from E0 deexcitation to 0$^+$ ground state and L=0 in (t,p) and (p,t).
1453.468[g] *5*	2$^+$		AB EFGHI M P R V	XREF: V(1461). J$^{\pi}$: from M1 γ to 2$^+$, E2 γ to 4$^+$ and expected band structure.

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
1485.671[h] *3*	5^-	1.92 ns *11*	C E HI P R UVW Z	XREF: V(1493). J^{π}: E1 γ's to 4^+ and 6^+ levels. log *ft*=4.77 from 6^- in ^{162}Ho (67.0 min) ε decay establishes configuration assignments for both states. $T_{1/2}$: weighted average of 1.91 ns *19* (1969Ho17) and 1.93 ns *13* (1973Ch28), from ^{162}Ho (67.0 min) ε decay. Other: <2.02 ps (2017Ap01, (n,γ) E=th).
1490.39[b] *6*	7^+		HI K WX Z	J^{π}: from γ's to 5^+, 6^+, and 8^+ levels and expected band structure.
1518.426[f] *4*	5^-	<0.13 ps	E HI PQR UV	XREF: Q(1527)V(1529). J^{π}: from E1 γ's to 4^+ and 6^+ levels. Assigned as 4^+ in (d,d′). $T_{1/2}$: from 2017Ap01 ((n,γ) E=th).
1530.127[‡d] *6*	6^-		C HI K WX Z	XREF: K(1527.5). J^{π}: from γ's to 4^- and 5^+ levels and expected band structure.
1535.664[j] *3*	4^+		EF HI OP R X Z	XREF: O(1533). J^{π}: from M1 component in γ to 3^+ level, γ's to 2^+ and 6^+ levels, and expected band structure. $T_{1/2}$: 0.10 ps<$T_{1/2}$<3.6 ps (2017Ap01, (n,γ) E=th).
1570.912[k] *3*	3^-		EFGH P r	XREF: P(1572.0)r(1574.78). J^{π}: from resonance-averaged n-capture and γ's to 1^- and 5^- levels.
1574.293[g] *4*	4^+		EFGHI O qr U	XREF: F(1575.6)G(1575.6)q(1577)r(1574.78)U(1578). J^{π}: from resonance-averaged n-capture and γ's to 2^+ and 6^+ levels. In (d,d′), level is assigned 3^-. $T_{1/2}$: 0.75 ps<$T_{1/2}$<2.1 ps (2017Ap01, (n,γ) E=th).
1575.623[i] *11*	6^-		C E I Pq VW Z	XREF: q(1577)V(1581). J^{π}: log *ft*=5.82 from 6^- in ^{162}Ho (67.0 min) ε decay indicates π=− and J=5, 6, 7. γ to 4^- rules out J=7. Expected band structure.
1634.415[j] *3*	5^+		E HI R VWX Z	XREF: V(1644). J^{π}: from γ's to 3^+ and 6^+ levels and expected band structure.
1637.196[l] *4*	1^-		EFGH p	XREF: p(1637.40). J^{π}: from resonance-averaged n-capture, E1 γ to 2^+ and proposed band structure.
1637.92[‡c] *8*	7^-		HI K p W Z	XREF: p(1637.40). J^{π}: E1 γ to 6^+ level and expected band structure.
1666.27[‡m] *20*	0^+		H S	J^{π}: from L=0 in (p,t).
1669.085[k] *3*	4^-		EFGH P R	J^{π}: M1 components in transitions to 3^- and 5^- levels.
1670.505[a] *19*	8^+		I K WX	XREF: K(1670.2). J^{π}: from γ's to 6^+ and 8^+ levels and expected band structure.
1683.35[h] *8*	7^-		I P R UVW Z	XREF: V(1691). J^{π}: from E1 γ to 6^+ level, γ to 8^+, and expected band structure.
1691.340[l] *4*	2^-		A EFGHI P S	XREF: S(1700). J^{π}: E2 γ to 4^- and M1 component in γ to 1^- levels. Other: L=2 in (p,t) implies 2^+.
1728.318[m] *4*	2^+		EFGH Q S	XREF: Q(1723)S(1732). J^{π}: from resonance-averaged n-capture and γ to 1^-

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$	XREF	Comments
				level. Other: (d,d′) data give J^{π} not 2^{+}, so level might be a doublet. T$_{1/2}$: 0.17 ps<T$_{1/2}$<0.7 ps (2017Ap01, (n,γ) E=th).
1738.999[l] *4*	3^{-}		EFGH PQ	XREF: Q(1737). J$^{\pi}$: from resonance-averaged n-capture and γ′s to 1^{-} and 5^{-} levels.
1745.716[n] *7*	1^{+}		AB DEFGHI O QR	J$^{\pi}$: from resonance-averaged n-capture, M1 component in γ to 2^{+} level and expected band structure.
1751.881[j] *3*	6^{+}		E I qR WX Z	XREF: q(1755). J$^{\pi}$: from γ′s to 4^{+}, 5^{+}, and 6^{+} levels and expected band structure.
1754.82[‡f] *20*	(7)$^{-}$		I K Pq VW	XREF: K(1759.)q(1755)V(1765). J$^{\pi}$: E1 γ to 6^{+} and expected band structure.
1766.608[o] *3*	3^{-}		EFGH p r U	XREF: p(1766.81)r(1766.81)U(1759). J$^{\pi}$: from resonance-averaged n-capture and γ′s to 2^{+} and 5^{-} levels.
1767.37[g] *17*	6^{+}		I W	J$^{\pi}$: E2 γ to 8^{+}, γ to 6^{+} and expected band structure.
1782.68[‡n] *9*	2^{+}	@	AB FGHI QR	XREF: Q(1777). Listed γ branching is from (n,n′γ), except where noted otherwise. J$^{\pi}$: from γ′s to 0^{+} and 4^{+} levels and expected band structure.
1807.56[i] *6*	8^{-}		I P VW Z	XREF: V(1816). J$^{\pi}$: γ′s to 6^{-}, 7^{-} and 7^{+} levels and expected band structure.
1826.753[o] *4*	4^{-}		EF H P U	XREF: U(1828). J$^{\pi}$: from resonance-averaged n-capture, γ′s to 3^{+} and 6^{-} levels, and expected band structure.
1833.25[‡k] *19*	(5^{-})		H P R	XREF: H(1837.09). E(level): from (d,p) and (d,t). J$^{\pi}$: from expected band structure.
1840.486[n] *4*	3^{+}		EFGH R V	XREF: V(1843). J$^{\pi}$: from resonance-averaged n-capture, γ′s to 2^{+}, 4^{+}, and 4^{-} levels, and expected band structure.
1845.53[d] *7*	8^{-}		I K WX Z	J$^{\pi}$: γ′s to 6^{-} and 7^{+} levels and expected band structure.
1851.811[l] *4*	4^{-}		EFGH P	J$^{\pi}$: from resonance-averaged n-capture. E1 γ to 5^{+} and E2 γ to 2^{-} levels.
1862.677[p] *3*	4^{-}		E	J$^{\pi}$: E1 γ to 5^{+} and E2 to 2^{-} levels. T$_{1/2}$: 1.10 ps<T$_{1/2}$<1.98 ps (2017Ap01, (n,γ) E=th).
1863.83[‡q] *6*	2^{-}		FGH PQ	Member of a possible doublet. 1995Be02 assign a number of γ′s deexciting this level. 2006Ap01, however, state that this level is not populated in the (n,γ) reaction with thermal neutrons. The listed γ branching is from (n,n′γ). J$^{\pi}$: from resonance-averaged n-capture.
1878.05[b] *7*	9^{+}		I K WX	J$^{\pi}$: E2 γ to 7^{+} and expected band structure.
1886.82[‡m] *9*	4^{+}		EFGH	The listed γ branching is from 2002Go15, in (n,n′γ). For a discussion of the problems associated with this γ branching, see the comments on this level in the ^{161}Dy(n,γ) E=th data set. J$^{\pi}$: from resonance-averaged n-capture and E2 γ to 2^{+} level.
1887.67[j] *5*	7^{+}		I R WX Z	γ-decay properties are from (α,2nγ). J$^{\pi}$: M1 component in γ to 6^{+}, E2 γ to 5^{+}, and expected band structure.
1895.42[‡] *5*	2^{+}		FGH P	Listed γ branching is from (n,n′γ). J$^{\pi}$: from resonance-averaged n-capture and γ′s to 1^{-} and 4^{+}

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
				levels.
1901.10[&] *8*	12^+	0.81 ps *8*	IJKLM WXY	XREF: M(1903.1). J^{π}: from E2 γ to 10^+ level and expected gs band structure. $T_{1/2}$: weighted average of 0.93 ps *6* (1977Ke06) and 0.76 ps *4* (1979Gu15) from Coul. ex. $T_{1/2}$: from B(E2)(10+→12^+)=2.1 *3* (Coul. ex.), the computed half-life is 0.75 ps *11*.
1904.13[‡] *11*			PQR	Assigned as the 4^+ member of the $K^{\pi}=1^+$ band at 1745 keV by 1995Be02 from (n,γ). However, the fact that this level is populated differently in (d,p) and (d,t) from the lower-spin members of this band suggests that it is not a member. In a subsequent (n,γ) study, 2006Ap01 do not confirm the population in (n,γ) of a level at this energy. They propose that the $J^{\pi}=4^+$ band member is at 1954 keV. E(level): value from 1995Be02 ((d,p) and (d,t)).
1910.430[q] *6*	3^-		EFGH P	J^{π}: from E1 γ's to 2^+ and 4^+ levels and resonance-averaged n-capture. $T_{1/2}$: 0.17 ps<$T_{1/2}$<0.21 ps (2017Ap01, (n,γ) E=th).
1913.68[‡o] *7*	5^-		R	J^{π}: from population in (d,t) and expected band structure.
1939.65[h] *9*	9^-		I R W Z	γ-decay properties are from (α,2nγ). J^{π}: E1 γ to 8^+, γ to 10^+, and expected band structure.
1951.391 *6*	$3^+,4^+$		EFGH P	E(level): 1995Be02 (in (n,γ)) report γ's depopulating this level to levels with J^{π} ranging from 0^+ and 1^- to 4^+ and 6^-, which suggests more than one level here. Resonance-averaged n capture also suggests the presence of a doublet of levels at this energy. The γ branching from the level listed here is that reported by 2006Ap01, which is adopted, differs from that given by 1995Be02. J^{π}: E1 γ to 4^- and M1 γ to 3^+. Level assigned as the 4^+ member of the $K^{\pi}=1^+$ band by 2006Ap01. However, 1995Be02 place that 4^+ state at 1904.13 keV, an assignment that is not adopted here.
1959.36[c] *8*	9^-		I K R VW Z	XREF: V(1955). J^{π}: E1 γ to 8^+, γ to 10^+, and expected band structure.
1963.598[l] *3*	5^-		E	J^{π}: from E2 γ to 3^-, E1 γ to 4^+ and γ to 6^+ levels.
1974.10[‡q] *10*	4^-		FGH P	XREF: F(1973.2)G(1973.2). J^{π}: from resonance-averaged n-capture and γ's to 3^+ and 4^+ levels.
1982.46[‡] *14*	2^+		A FGH N P R	J^{π}: from γ's to 0^+ and 4^+ levels.
1985.88[g] *21*	8^+		I K P U WX	XREF: K(1989.)U(1990).
1999.33 *13*	2^+		A EFGH PQR	J^{π}: resonance-averaged n-capture data give $2^+,3^+,(4^+)$. γ's to 0^+ and 3^- levels rule out 3^+ and 4^+.
2000.7[o] *10*			R	
2009.796 *5*			E H R	J^{π}: assigned by 1995Be02, in (n,γ), as the 5^+ member of the $K^{\pi}=1^+$ band at 1745 keV. This seems to Be based, in part, on the identification by 1995Be02 of the 1904 level as the 4^+ band member. However, this assignment is not adopted. γ to a 3^- level suggests $J^{\pi}=5^+$ is incorrect.
2040.97[j] *7*	8^+		I X Z	γ-decay properties are from (α,2nγ).

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$	XREF	Comments
				J$^{\pi}$: M1 component in γ to 7$^+$, E2 γ to 8$^+$, and expected band structure.
2041.45 *20*			R	
2047 *3*			Q	
2053.541[q] *13*	5$^-$		E H P	J$^{\pi}$: from γ's to 4$^+$ and 6$^+$ levels and expected band structure.
2065.79 *21*			R	
2071.95 *9*	(4)		E H P R	J$^{\pi}$: from 1995Be02, (n,γ). γ's to 2$^+$ and 6$^+$ levels imply J^{π}=4$^+$. Note, however, that this level is not populated in resonance-averaged n capture, where all the J=4 levels should Be populated via primary γ transitions.
2079[n]	(6$^+$)		V	J$^{\pi}$: from (^{3}He,α), where L=5,6.
2080.03 *5*	(2,3)		EFGH PQR U	XREF: Q(2076)U(2085). J$^{\pi}$: γ's to 0$^+$ and 4$^+$ levels imply 2$^+$, while resonance-averaged n-capture gives 2$^-$,3$^-$.
2087.49[a] *7*	10$^+$		I K R WX	J$^{\pi}$: γ's to 8$^+$ and 10$^+$ levels and expected band structure.
2100.66[f] *14*	9$^-$		I W	γ-decay properties are from (α,2nγ). J$^{\pi}$: E1 γ to 8$^+$, γ to 10$^+$, and expected band structure.
2102.8 *4*	3$^-$		OPQR	J$^{\pi}$: from ang. dist. in (d,d$'$) (1973St07).
2103.48 *7*	(2$^+$)		EFG R	XREF: R(2108.5). J$^{\pi}$: resonance averaged n-capture gives 2$^+$,3$^+$,(4$^+$). γ's to 0$^+$ and 3$^+$ levels.
2110.70[i] *8*	10$^-$		I W	J$^{\pi}$: γ's to 8$^-$ and 9$^-$ levels and expected band structure.
2112.6 *1*			P RS	
2120.717 *9*	(4$^-$)		EFG P R	J$^{\pi}$: from resonance-averaged n-capture.
2125.212[r] *8*	0$^+$		E O S	XREF: S(2126.5). J$^{\pi}$: from L=0 in (t,p).
2128.6 *4*	1$^-$		A FGH p r	XREF: p(2128.64)r(2128.64). J$^{\pi}$: Resonance-averaged n-capture gives 1$^-$ or 4$^-$. ^{162}Tb β^- decay gives 1 or 2.
2129.497 *19*	(2$^+$)		E H p rS	XREF: p(2128.64)r(2128.64). J$^{\pi}$: from L=2 in (p,t), which implies several γ's to 4$^-$ levels are M2.
2138.5 *3*			R V	
2148.681 *4*	(2)		EFG	J$^{\pi}$: from resonance-averaged n-capture.
2163.3 *5*	1,2,3		A P R	J$^{\pi}$: from γ's to 2$^+$ and 2$^-$ levels.
2174.61 *24*			R	
2181.0[s]	4$^+$		X	
2185.22 *17*			P	
2187.9[e] *10*	8$^+$	8.3 μs *3*	I Z	T$_{1/2}$: from $\gamma\gamma$(t) (2011Sw02). Proposed configuration=ν11/2[505]$\otimes\nu$5/2[523], K^{π}=8$^+$, in 2011Sw02 (^{160}Gd(^{9}Be,α3nγ)). J$^{\pi}$: (7$^-$,8$^+$) from γ's to 6$^+$ and 9$^-$ respectively; (8$^+$) from proposed configuration.
2189.71[r] *18*	(2$^+$)		E H P	XREF: H(2192.0). J$^{\pi}$: from γ's to 0$^+$ and 3$^+$ levels and expected band structure.
2199.2 *3*			R	
2203[t]	(8$^+$)		V	J$^{\pi}$: from (^{3}He,α), where L=5,6.
2207.5 *3*			R	
2211.59[j] *8*	9$^+$		I WX	γ branching and properties are from (α,2nγ). J$^{\pi}$: M1 components in γ's to 8$^+$ and 9$^+$ levels, E2 γ to 7$^+$, and expected band structure.
2215.6 *6*			H P	

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
2230.75 *21*			P R	
2234.18[d] *9*	10^-		I WX	J^{π}: γ's to 8^- and 9^+ levels and expected band structure.
2239.4 *4*			E H P	
2245.6 *3*			P R	
2262.30[g] *11*	10^+		I R U WX	J^{π}: M1 γ to 10^+ and expected band structure.
2269.5 *3*			PQR	
2276 *4*			E	
2280.5 *3*			P	
2280.88[h] *12*	11^-		I W	J^{π}: γ to 10^+ and expected band structure.
2283[u]	(5^+)		V	J^{π}: from (^{3}He,α), where L=5,6.
2291.4 *3*			H P R	
2292			U	
2292.4[s] *7*	5^+		X	E(level): the evaluator has chosen not to identify this level with those listed at 2291.4 and/or 2292, since the other members of this proposed $K^{\pi}=4^+$ band are not observed in either of the reactions in which these levels are reported.
2299.09 *23*			E R	
2311.3 *3*			H R	
2314.1 *5*			e H P R	XREF: e(2315).
2318.2 *8*	(3^-)		e PQ	XREF: e(2315). J^{π}: from 1968Gr08, (d,d′).
2324.85 *21*			H P R	
2330.95[c] *8*	11^-		I K W	J^{π}: γ to 10^+ level and expected band structure.
2337.35[b] *8*	11^+		I K WX	J^{π}: γ's to 9^+ and 10^+ levels and expected band structure.
2338.7 *5*			E H P	
2344.4 *3*			H P	
2348.8 *3*			E P R	
2351			H U	
2355.7 *3*			H P	
2362.94 *20*			H P R	
2368.9[e] *13*	(9^+)		Z	J^{π}: γ to (8^+) and band assignment.
2369.1 *8*			H P	
2371.3 *3*	1^-,2,3		A E	J^{π}: from γ's to 2^-, 2^+, and 3^- levels.
2374[u]	(6^+)		V	J^{π}: from (^{3}He,α), where L=5,6.
2375.6 *3*			P R u	XREF: u(2381).
2381.4 *5*			H R u	XREF: u(2381).
2386.3 *6*			H P	
2394.85 *15*	1^+	11.1[@] fs *7*	H N	B(M1)↑=0.52 *3* J^{π}: from M1 excitation in (γ,γ'). $T_{1/2}$: Other: $T_{1/2}$=8 fs *4* from (n,n′γ). B(M1)↑: from (γ,γ').
2398.27[j] *22*	10^+		I X	J^{π}: γ to 8^+, possible γ to 9^+, and expected band structure.
2403.4 *3*			H R	
2413.1 *4*			E R	
2421.0[s]	6^+		X	
2427.9 *6*			P U	
2437.1 *4*			E H P R	
2451.8 *5*			P	
2455			Uv	XREF: v(2458).
2457 *5*			E	
2459.0 *3*			H P R v	XREF: v(2458).
2469.7 *7*			R	

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
2480.2 *5*			H P	
2482.34[i] *9*	12^-		I W	J^{π}: γ's to 10^- and 11^- levels and expected band structure.
2483.7 *8*			R	
2488.3 *4*			E H P	
2491.65[&] *9*	14^+	0.45 ps *5*	I K M WXY	XREF: M(2495). $T_{1/2}$: from 1979Gu15, Coul. ex. J^{π}: from expected band structure. Populated in Coul. ex.
2494.4 *9*	0^+		RS	XREF: S(2496.7). J^{π}: from L=0 in (p,t). The evaluator has assumed that these two levels are the same.
2503.83[f] *12*	11^-		I W	XREF: I(2504.15). J^{π}: γ's to 10^+ and 12^+ levels and expected band structure.
2506[v]	(7^+)		UV	J^{π}: from (α,^{3}He), where L=5,6.
2510.3 *10*			e H P	XREF: e(2516).
2513.6 *6*			e P R	XREF: e(2516).
2520.4 *7*	1^-	7.5[@] fs *6*	e H N P	B(E1)↑=5.0×10^{-5} *4* XREF: e(2516)N(2520). J^{π}: from E1 excitation in (γ,γ'). B(E1)↑: from ^{162}Dy(γ,γ').
2524.1 *4*			H P R	
2529.4 *6*			H P U	
2534.86[g] *9*	12^+		I WX	XREF: I(2535.21). J^{π}: γ's to 10^+ and 12^+ levels and expected band structure.
2537.4 *7*	1	98[@] fs *21*	H N P R	J^{π}: from dipole excitation in (γ,γ').
2551.3 *11*			H R	
2554.3 *6*			H P	XREF: P(2553.7).
2562[u]	(7^+)		V	J^{π}: from (^{3}He,α), where L=5,6.
2565.2 *11*			E R	
2567.9[e] *13*	(10^+)		Z	J^{π}: γ's to (8^+) and (9^+) and band assignment. Magnitude of g_K-g_R=0.24 *4* (2011Sw02, ^{160}Gd(^{9}Be,α3nγ)).
2569.4 *7*	1^+	39[@] fs *4*	H N P	B(M1)↑=0.13 *1* J^{π}: from M1 excitation in (γ,γ'). B(M1)↑: from (γ,γ').
2579.6 *11*	(2^+)		RS	J^{π}: from L=2 in (p,t), assuming that level seen in the two reactions is the same.
2584.0 *4*			E P	
2601.32[j] *12*	11^+		I WX	J^{π}: γ to 9^+ level and expected band structure.
2614.8 *4*			P	
2617.3 *5*			R	
2622.78[a] *9*	12^+		I WX	J^{π}: γ's to 10^+ and 12^+ levels and expected band structure.
2623[w]	(6^+)		U	J^{π}: from (α,^{3}He), where L=6.
2630.6 *3*			R	
2641.6 *3*			E H R	
2647			U	
2648 *5*			E	
2663.0 *8*	0^+		E H RS	J^{π}: from L=0 in (p,t).
2670.65[d] *12*	12^-		I WX	J^{π}: γ's to 10^- and 11^+ levels and expected band structure.
2680.6 *9*			R	

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
2682.59[h] *10*	13⁻		I W	J^{π}: γ's to 11⁻ and 12⁺ levels and expected band structure.
2688.5 *11*			E R	
2695.9 *16*	(10⁺)		Z	J^{π}: γ to (9⁺), (10⁺) assigned by 2011Sw02 (^{160}Gd(^{9}Be,α3nγ)).
2697			U	
2704			V	
2708.9 *12*			H R	
2718.2 *10*			E R	
2726			U	
2730.6 *9*			R	
2742.2 *11*			E R	
2750.8 *9*			H R	
2755[v]	(8⁺)		U	J^{π}: from (^{3}He,α), where L=6.
2768.7 *8*			E R	
2777.99[c] *11*	13⁻		I W	J^{π}: γ's to 11⁻ and 12⁺ levels and expected band structure.
2779.8 *9*			E H R	XREF: E(2773).
2784.9[e] *14*	(11⁺)		Z	J^{π}: γ's to (9⁺) and (10⁺) and band assignment. Magnitude of g_K-g_R=0.27 +*8*−*6* (2011Sw02, ^{160}Gd(^{9}Be,α3nγ)).
2785			U	
2788.8 *9*			H R	
≈2800			S	E(level): L=5+7 in (p,t) suggests that this is a doublet.
2802.7 *6*	0⁺		E H RS	XREF: E(2796). J^{π}: from L=0 in (p,t).
2812			U	
2815	1	39[@] fs *13*	N	J^{π}: from dipole excitation in (γ,γ').
2817[j]	12⁺		X	
2818.2 *8*			E R	
2847[w]	(7⁺)		UV	J^{π}: from (α,^{3}He), where L=6.
2848.4 *8*			E R	
2859.63[b] *10*	13⁺		I WX	J^{π}: γ's to 11⁺ and 12⁺ levels and expected band structure.
2861.5 *7*			R	
2880.0 *7*			R	
2900.0 *3*	1⁺	2.05[@] fs *13*	H N R U	B(M1)↑=1.63 *10* XREF: H(2902.1). B(M1)↑: from (γ,γ'). J^{π}: from M1 excitation in (γ,γ'). $T_{1/2}$: other: <4 fs from (n,n'γ).
2909.4 *7*	1	22[@] fs *7*	H N R	XREF: H(2909.7). J^{π}: from dipole excitation in (γ,γ').
2919.55[i] *13*	14⁻		W	
2929.4 *7*	1⁻	20.0[@] fs *21*	H N R	B(E1)↑=1.7×10⁻⁵ *2* J^{π}: from E1 excitation in (γ,γ'). B(E1)↑: from (γ,γ').
2930[v]	(9⁺)		U	
2934.55[g] *10*	14⁺		I WX	J^{π}: γ's to 12⁺ and 14⁺ levels and expected band structure.
2940.4 *7*			R	
2950 *5*			E	
2959.8 *7*			R	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$	XREF	Comments
2963.94[f] *13*	13⁻		I W	Jπ: γ's to 10⁺, 11⁻ and 12⁺ levels and expected band structure.
2965	1⁺	33[@] fs *5*	N	B(M1)↑=0.10 *1* Jπ: from M1 excitation in (γ,γ'). B(M1)↑: from (γ,γ').
2971.8 *6*			R	
2989.2 *7*			H R	
2997 *5*			E	
3012.3 *6*			H R	
3019 *5*			E	
3029.3 *6*			E R	
3040.3 *6*			R	
3052.82[j] *15*	13⁺		W	
3061.2 *3*	1⁺	3.9[@] fs *4*	H N R	B(M1)↑=0.86 *8* Jπ: from M1 excitation in (γ,γ'). $T_{1/2}$: other: 6 fs *3* from (n,n'γ).
3070.8 *6*			H R	
3085.8 *6*			R	
3105.9 *9*			R	
3115.7 *7*			R	
3123.25[d] *16*	14⁻		W	
3127 *7*			R	
3138.55[&] *12*	16⁺		I M WXY	XREF: M(3144).
3139.5 *7*			R	
3145.63[h] *10*	15⁻		I W	Jπ: γ's to 13⁻ and 14⁺ and expected band structure.
3145.64[a] *10*	14⁺		I WX	Jπ: γ's to 12⁺ levels and expected band structure.
3151.9 *5*			R	
3171.4 *6*			R	
3187.8 *5*			R	
3241 *5*			E	
3269[j]	14⁺		X	
3293.21[c] *11*	15⁻		I W	Jπ: γ to 14⁺ and expected band structure.
3303			V	
3373.94[g] *12*	16⁺		WX	
3415.95[i] *16*	16⁻		W	
3434.04[b] *11*	15⁺		WX	
3474.84[f] *17*	15⁻		W	
3564.22[j] *18*	15⁺		W	
3577	1		N	Jπ: from dipole excitation in (γ,γ').
3627.26[d] *19*	16⁻		W	
3666.92[h] *15*	17⁻		W	
3734.23[a] *14*	16⁺		WX	
3830.93[&] *14*	18⁺		I M WXY	XREF: I(3832.3)M(3837). Jπ: from γ to 16⁺ level and expected band structure.
3835[j]	16⁺		X	
3874.28[c] *13*	17⁻		W	
3878.37[g] *13*	18⁺		WX	
3966.65[i] *19*	18⁻		W	
4037.24[f] *20*	17⁻		W	
4039.64[b] *15*	17⁺		WX	

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

E(level)[†]	J$^\pi$[#]	XREF	Comments
4195.56[d] *21*	18$^-$	W	
4243.52[h] *18*	19$^-$	W	
4342.53[a] *18*	18$^+$	WX	
4434.60[g] *14*	20$^+$	WX	
4516.28[c] *16*	19$^-$	W	
4568.76[i] *22*	20$^-$	W	
4577.73[&] *17*	20$^+$	WXY	XREF: Y(4572).
4650.55[f] *22*	19$^-$	W	
4873.42[h] *21*	21$^-$	W	
5061.80[g] *18*	22$^+$	W	
5221.06[i] *24*	22$^-$	W	
5352.0[&] *3*	22$^+$	WX	
5554.13[h] *23*	23$^-$	W	
5747.20[g] *20*	24$^+$	W	
5920.9[i] *3*	24$^-$	W	
6153.2[&] *4*	24$^+$	WX	
6488.7[g] *3*	26$^+$	W	
7276.0[g] *4*	28$^+$	W	

[†] Calculated from a least-squares fit to the listed γ energies. In this fit, 141 Eγ values out of 508 differ by more than 3σ from the calculated values. Other values are from the relevant reaction data.

[‡] Level reported by 1995Be02 in (n,γ), but not confirmed by 2006Ap01 (whose data extend only to levels below 2 MeV). See the relevant comment in the ^{162}Dy(n,γ) E=th data set.

[#] For levels seen only in the heavy-ion-induced reactions, the values are obtained based on considerations commonly used in such studies. Explicit arguments are given for the other cases.

[@] From (γ,γ') and, to the extent that level may decay via unreported γ's, values are upper limits.

[&] Band(A): K$^\pi$=0$^+$ ground-state band. A=13.51 keV, B=−11 eV, computed from the energies of the 0$^+$ through 4$^+$ band members.

[a] Band(B): γ-vibrational band, signature=0 branch. A=12.56 keV, B=−11 eV, A$_4$=−0.672 eV. Values computed from the energies of the 2$^+$ through the 5$^+$ band members.

[b] Band(b): γ-vibrational band, signature=1 branch. See the comments on the signature=0 branch.

[c] Band(C): K$^\pi$=2$^-$ octupole-vibrational band, signature=1 branch. Dominant configuration=(π 7/2[523])-(π 3/2[411]). A=10.57 keV, B=−7.5 eV, A$_4$=+7.87 eV, computed from the energies of the 2$^-$ through 5$^-$ band members.

[d] Band(c): K$^\pi$=2$^-$ octupole-vibrational band, signature=0 branch. See the comments on the signature=1 branch.

[e] Band(D): K^π=8$^+$ band based on 8.3 μs isomer.

[f] Band(E): K$^\pi$=0$^-$ octupole-vibrational band. Configuration=(ν 5/2[642])-(ν 5/2[523]) is the largest component in the make-up of this band. A=7.82 keV, B=+27 eV, computed from the energies of the 1$^-$, 3$^-$ and 5$^-$ band members. Note that they do not give a good description of the energies of the higher-spin band members.

[g] Band(F): K$^\pi$=0$^+$ band, S, or 'Super', band. A=8.94 keV, B=−12 eV, computed from the energies of the 0$^+$ through 4$^+$ band members. These values do not give a good description of the energies of the higher-spin states. This band intersects the g.s. band at spin 18.

[h] Band(G): K$^\pi$=5$^-$ band, signature=1 branch. Dominant configuration=(ν 5/2[642])+(ν 5/2[523]). A=7.44 keV, B=+4.7 eV, computed from the energies of the 5$^-$ through 7$^-$ band members.

[i] Band(g): K$^\pi$=5$^-$ band, signature=0 branch. See the comments on the signature=1 branch.

[j] Band(H): K$^\pi$=4$^+$ band, probable hexadecapole vibration. Dominant conf=(ν 3/2[521])+(ν 5/2[523]). A=9.90 keV, B=−2.9 eV, computed from the energies of the 4$^+$ through 6$^+$ band members. From (^{162}Dy,^{162}Dy$'\gamma$), 2001Wu05 infer that the two-phonon γ-vibrational phonon contributes ≈11% to the make-up of this band.

[k] Band(I): K$^\pi$=3$^-$ octupole-vibrational band. Configuration=(ν 5/2[642])+(ν 1/2[521]) contributes ≈50% to the make-up of this

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Adopted Levels, Gammas (continued)

^{162}Dy Levels (continued)

band. A=12.39 keV, computed from the energies of the 3^- and 4^- band members. The energy of the 5^- band member is not well predicted by this value.

[l] Band(J): $K^\pi=1^-$ octupole-vibrational band. Configuration=(ν 5/2[642])-(ν 3/2[521]) is the largest component in the make-up of this band.

[m] Band(K): $K^\pi=0^+$ band. A=10.05 keV, B=+49 eV, computed from the energies of the 0^+ through 4^+ band members. The relatively large, positive, value of B suggests that these parameters will not provide a good description of the energies of the higher-spin states.

[n] Band(L): $K^\pi=1^+$ band. Dominant configuration=(ν 5/2[523])-(ν3/2[521]).

[o] Band(M): Second excited $K^\pi=3^-$ band. Configuration=(ν 5/2[642])+(ν 1/2[521]) is a large part of the make-up of this band. From the energies of the 3^- through 5^- band members, one computes A=6.98 and B=+54 eV. These seem unusual, suggesting some problems in the assignment of the band members.

[p] Band(N): bandhead of a $K^\pi=4^-$ band.

[q] Band(O): Second excited $K^\pi=2^-$ band. Dominant configuration=(ν 5/2[642])-(ν 1/2[521]). A=7.54 keV, B=+16 eV, A_4=+788 meV, computed from the energies of the 2^- through 5^- band members.

[r] Band(P): $K^\pi=0^+$ band.

[s] Band(Q): Second excited $K^\pi=4^+$ band. From (^{162}Dy,^{162}Dy$'\gamma$), 2001Wu05 infer that the two-phonon γ-vibrational phonon contributes ≈25% to the make-up of this band. A=11.15 keV, computed from the energies of the 4^+ and 5^+ band members.

[t] Band(R): $K^\pi=8^+$ bandhead. Configuration=(ν 5/2[523])+(ν 11/2[505]).

[u] Band(S): member of a $K^\pi=3^+$ band. Configuration=(ν 11/2[505])-(ν 5/2[523]).

[v] Band(T): $K^\pi=6^+$ band member. Configuration=(ν 5/2[642])+(ν 7/2[633]).

[w] Band(U): $K^\pi=1^+$ band member. Configuration=(ν 7/2[633])-(ν 5/2[642]).

$\gamma(^{162}Dy)$

Based on data from ^{162}Tb β^- decay, ^{162}Ho ε decay (15 min and 67 min), ^{161}Dy(n,γ), ^{162}Dy(n,n$'\gamma$), ^{160}Gd(α,2nγ), Coul. ex., ^{162}Dy(γ,γ'), ^{118}Sn(^{162}Dy,^{162}Dy$'\gamma$), ^{160}Gd(^{7}Li,p4nγ), and ^{160}Gd(^{37}Cl,Xγ).

E_i(level)	J^π_i	E_γ [†‡#]	I_γ	E_f	J^π_f	Mult. [&]	δ [&b]	α [a]	Comments
80.661	2+	80.659 *7*	100	0.0	0+	E2		6.14	B(E2)(W.u.)=202.1 *31* α(K)=1.82 *3*; α(L)=3.32 *5*; α(M)=0.797 *12* α(N)=0.1784 *25*; α(O)=0.0212 *3*; α(P)=7.66×10^{-5} *11* B(E2)(W.u.) calculated directly from the adopted B(E2)↑. Mult.: all data agree with pure E2 assignment, namely, K/L=0.54 (1961Jo10), L1/L2/L3=0.11/0.98/1.00 (1961Ha23), and α(K)exp=2.1 (evaluator's combination of Iγ from 1971Wo09 and Ice from 1961Jo10). All data are from ^{162}Ho ε decays. Additional information 2.
265.664	4+	185.002 *1*	100	80.661	2+	E2		0.307	B(E2)(W.u.)=289 *11* α(K)=0.200 *3*; α(L)=0.0826 *12*; α(M)=0.0194 *3* α(N)=0.00438 *7*; α(O)=0.000550 *8*; α(P)=9.37×10^{-6} *14* Mult.: the data agree reasonably well with pure E2, namely, K/L=2.3 *5*, 2.2, and 2.1 (1967Ba34,1961Jo10,1961Ha23), L1/L2/L3=0.38/1.15/1.00 (1961Ha23), and α(K)exp=0.19 *3* (1967Ba34) (evaluator's combination of Iγ from 1971Wo09 and Ice from 1961Jo10). Data are from ^{161}Dy(n,γ) for 1967Ba34 and otherwise from ^{162}Ho ε decays. Additional information 3.
548.520	6+	282.859 *2*	100	265.664	4+	E2		0.0773	B(E2)(W.u.)=302 *16* α(K)=0.0572 *8*; α(L)=0.01557 *22*; α(M)=0.00359 *5* α(N)=0.000816 *12*; α(O)=0.0001067 *15*; α(P)=2.95×10^{-6} *5* Mult.,δ: the data agree with a pure E2 assignment, namely, α(K)exp=0.066 (evaluator's combination of Iγ from 1971Wo09 and Ice from 1961Jo10), and K/L=3.7 (1961Jo10). Data are from ^{162}Ho ε decays. Additional information 4.
888.161	2+	622.494 *3*	2.08 *8*	265.664	4+	E2		0.00875	B(E2)(W.u.)=0.628 *+41−39* α(K)=0.00718 *10*; α(L)=0.001229 *18*; α(M)=0.000274 *4* α(N)=6.29×10^{-5} *9*; α(O)=8.83×10^{-6} *13*; α(P)=4.08×10^{-7} *6* I$_\gamma$: weighted average of: 2.08 *7* (^{162}Tb β^- decay); and and 1.93 *7* (n,γ). Other: 1.4 *1* (n,n$'\gamma$).
		807.501 *2*	100 *3*	80.661	2+	E2+M1	+57 *+∞−33*	0.00481	B(M1)(W.u.)=3.4×10^{-6} *+19−10*; B(E2)(W.u.)=8.23 *41* α(K)=0.00400 *6*; α(L)=0.000628 *9*; α(M)=0.0001390 *20* α(N)=3.20×10^{-5} *5*; α(O)=4.56×10^{-6} *7*; α(P)=2.30×10^{-7} *4* Mult.,δ: from (n,n$'\gamma$). From α(K)exp=0.0041 *1* or 0.0043, γ is E2 with δ>5.4 or >1.7, respectively [2006Ap01, from (n,γ), or 1982Fi15, from

$^{162}_{66}Dy_{96}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
									(α,2nγ)]. From $\gamma(\theta)$ and $\gamma\gamma(\theta)$, δ>+41.1 or <−8.3 [1980Hu06, from (n,γ)], δ>29 (1972Do01 from Coul. ex.), and δ<−2.9 or >+11.4 [1977Ho11 from (n,n′γ)]. Additional information 5 (1980Hu06).
888.161	2^+	888.157 *3*	91 *2*	0.0	0^+	E2		0.00391	B(E2)(W.u.)=4.65 *+24−22* α(K)=0.00327 *5*; α(L)=0.000500 *7*; α(M)=0.0001103 *16* α(N)=2.54×10^{-5} *4*; α(O)=3.64×10^{-6} *5*; α(P)=1.88×10^{-7} *3* B(E2)(W.u.) is computed from B(E2)↑=0.122 *5*, in Coul. ex. I_γ: weighted average of: 90 *4*, from ^{162}Tb β^- decay; 90 *6*, from (n,n′γ); and 92 *3*, from (n,γ). Other: 126 *9*, from ^{162}Ho ε decay (67.0 min).
921.28	8^+	372.50 *18*	100	548.520	6^+	[E2]		0.0339	B(E2)(W.u.)=346 *17* α(K)=0.0264 *4*; α(L)=0.00587 *9*; α(M)=0.001339 *19* α(N)=0.000305 *5*; α(O)=4.10×10^{-5} *6*; α(P)=1.425×10^{-6} *20* E_γ: average of: 372.20 *9* (from (n,n′γ)); 372.56 *15* (from muonic atom); and 372.75 *8* (from Coul. ex.).
962.940	3^+	697.277 *2*	19.5 *5*	265.664	4^+	E2(+M1)	>45	0.00670	α(K)=0.00553 *8*; α(L)=0.000909 *13*; α(M)=0.000202 *3* α(N)=4.64×10^{-5} *7*; α(O)=6.56×10^{-6} *10*; α(P)=3.17×10^{-7} *5* I_γ: weighted average of: 20.3 *11* (n,n′γ); 19.2 *6* (^{162}Tb β^- decay); 17 *3* (^{162}Ho ε decay (67.0 min)); and 19.8 *11* (n,γ). Mult.,δ: δ is from (n,n′γ). From α(K)exp=0.0056 *2* in (n,γ), 2006Ap01 report δ>4.5. From $\gamma\gamma(\theta)$ in (n,γ), δ>+11.7 or <−10.4 (1980Hu06). Additional information 6. δ: 2006Ap01 report δ>4.5.
		882.276 *3*	100.0 *15*	80.661	2^+	E2+M1	+41 *+34−13*	0.00397	α(K)=0.00332 *5*; α(L)=0.000508 *8*; α(M)=0.0001121 *16* α(N)=2.58×10^{-5} *4*; α(O)=3.69×10^{-6} *6*; α(P)=1.91×10^{-7} *3* Mult.,δ: from (n,n′γ). From α(K)exp=0.0041 *6* or 0.0032 *1*, γ is E2 with δ>1.1 or >12, respectively, [1982Fi15 from (α,2nγ) or 2006Ap01 from (n,γ)]. From $\gamma\gamma(\theta)$ in (n,γ), δ=+2.6 *+53−16* (1980Hu06). Additional information 7.
1060.991	4^+	98.054 *3*	0.08 *1*	962.940	3^+	M1		2.53	α(K)=2.13 *3*; α(L)=0.314 *5*; α(M)=0.0690 *10* α(N)=0.01595 *23*; α(O)=0.00233 *4*; α(P)=0.0001330 *19*
		172.835 *3*	0.71 *3*	888.161	2^+	E2		0.387	α(K)=0.245 *4*; α(L)=0.1097 *16*; α(M)=0.0259 *4* α(N)=0.00583 *9*; α(O)=0.000728 *11*; α(P)=1.127×10^{-5} *16*
		512.464 *5*	1.58 *6*	548.520	6^+	E2		0.01422	α(K)=0.01147 *16*; α(L)=0.00214 *3*; α(M)=0.000481 *7* α(N)=0.0001100 *16*; α(O)=1.520×10^{-5} *22*; α(P)=6.43×10^{-7} *9*
		795.327 *3*	100 *4*	265.664	4^+	E2+M1	+12 *+18−4*	0.00500 *8*	α(K)=0.00416 *7*; α(L)=0.000655 *10*; α(M)=0.0001449 *22* α(N)=3.33×10^{-5} *5*; α(O)=4.75×10^{-6} *8*; α(P)=2.39×10^{-7} *4* Mult.,δ: from (n,n′γ). From α(K)exp=0.0043 *2* and 0.0033 *5*, γ is

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ [†‡#]	I_γ	E_f	J^π_f	Mult. [&]	δ [&b]	α [a]	$I_{(\gamma+ce)}$	Comments
										E2 with %M1<10 [2006Ap01, (n,γ), and 1982Fi15, (α,2nγ)]. From $\gamma(\theta)$ and $\gamma\gamma(\theta)$, δ=−5.3 *+2−126* [1980Hu06 from (n,γ)], δ=−2.4 *+8−47* (1972Do01 from Coul. ex.). From the results of 1967Ba34, 1972Do01 and 1980Hu06, −7.1<δ<−4.0. Additional information 8.
1060.991	4^+	980.335 *6*	57 *2*	80.661	2^+	E2		0.00317		α(K)=0.00266 *4*; α(L)=0.000398 *6*; α(M)=8.75×10^{-5} *13* α(N)=2.02×10^{-5} *3*; α(O)=2.90×10^{-6} *4*; α(P)=1.536×10^{-7} *22* I_γ: weighted average of: 59 *3*, from (n,γ); and 53 *4*, from (n,n′γ). From ^{162}Ho ε decay (67.0 min), Iγ=84 *7*. Mult.: from (n,γ) (2006Ap01), α(K)exp=0.0027 *1*, which is interpreted as E2+<7%M1, supporting the assignment.
1148.232	2^-	185.292 *1*	20.0 *8*	962.940	3^+	E1		0.0595		B(E1)(W.u.)=2.7×10^{-5} *+7−5* α(K)=0.0501 *7*; α(L)=0.00731 *11*; α(M)=0.001598 *23* α(N)=0.000365 *6*; α(O)=5.13×10^{-5} *8*; α(P)=2.51×10^{-6} *4* I_γ: weighted average of: 18.0 *14*, from ^{162}Tb β^- decay; and 20.7 *9*, from (n,γ). δ: from $\gamma\gamma(\theta)$ in (n,γ), δ=−0.03 *16* (1980Hu06), which is compatible with pure E1.
		260.067 *8*	100 *5*	888.161	2^+	E1		0.0246		B(E1)(W.u.)=5.0×10^{-5} *+12−8* α(K)=0.0209 *3*; α(L)=0.00297 *5*; α(M)=0.000649 *9* α(N)=0.0001488 *21*; α(O)=2.11×10^{-5} *3*; α(P)=1.085×10^{-6} *16* δ: from $\gamma(\theta)$ in (α,2nγ), smaller δ=−0.15 *+30−10* (1982Fi15) and from $\gamma\gamma(\theta)$ in (n,γ), δ=−0.04<δ<+0.06 (1980Hu06). From ^{162}Dy(n,n′γ), δ(M2/E1)=+0.04 *+16−11*. Additional information 9.
		1067.55 *10*	0.70 *2*	80.661	2^+	[E1]		1.11×10^{-3}		α(K)=0.000946 *14*; α(L)=0.0001252 *18*; α(M)=2.72×10^{-5} *4* α(N)=6.26×10^{-6} *9*; α(O)=9.16×10^{-7} *13*; α(P)=5.28×10^{-8} *8* B(E1)(W.u.)=5.0×10^{-9} *+13−8* γ not reported by 2006Ap01 (n,γ).
1182.763	5^+	121.774 *2*	0.17 *1*	1060.991	4^+	E2(+M1)	>1.7	1.325 *20*		α(K)=0.73 *7*; α(L)=0.46 *5*; α(M)=0.109 *11* α(N)=0.0245 *24*; α(O)=0.0030 *3*; α(P)=3.4×10^{-5} *6* δ: from α(K)exp in (n,γ) (2006Ap01). δ^2=1.4 *+8−4* from Iγ and Alaga-rule considerations [1978Ge03 in (n,γ)].

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1182.763	5+	219.823 *1*	2.47 *12*	962.940	3+	E2		0.1729	α(K)=0.1199 *17*; α(L)=0.0410 *6*; α(M)=0.00958 *14* α(N)=0.00217 *3*; α(O)=0.000276 *4*; α(P)=5.85×10^{-6} *9* I_γ: from 2006Ap01, (n,γ). From ^{162}Ho ε decay (67.0 m), Iγ=5.6 *28*.
		634.246 *2*	19.0 *6*	548.520	6+	E2+M1	−7 *+2−20*	0.00853 *19*	α(K)=0.00701 *17*; α(L)=0.001184 *22*; α(M)=0.000264 *5* α(N)=6.06×10^{-5} *11*; α(O)=8.52×10^{-6} *17*; α(P)=4.00×10^{-7} *10* I_γ: from 2006Ap01, (n,γ). From ^{162}Ho ε decay (67.0 min), Iγ=18.6 *10*. Other: 28 *2*, from (n,n′γ). Mult.,δ: from (n,n′γ). From γγ(θ) in (n,γ), δ=+3.9 *+41−15* (1980Hu06). Additional information 10.
		917.092 *2*	100 *6*	265.664	4+	E2+M1	+50 *+50−2*	0.00365	α(K)=0.00306 *5*; α(L)=0.000464 *7*; α(M)=0.0001022 *15* α(N)=2.35×10^{-5} *4*; α(O)=3.38×10^{-6} *5*; α(P)=1.762×10^{-7} *25* Mult.,δ: from (n,n′γ). From γ(θ) and γγ(θ), δ<−62.7 or >+4.8 and δ<−2.7 or >+14.3, (1980Hu06,1977Ho11). So, δ<−62 or >+14. From (α,2nγ) (1982Fi15), α(K)exp=0.0039 *6*, which gives δ=1.5 *+15−5*. Additional information 11.
1210.089	3−	149.100 *2*	4.4 *1*	1060.991	4+	E1		0.1059	α(K)=0.0891 *13*; α(L)=0.01321 *19*; α(M)=0.00289 *4* α(N)=0.000660 *10*; α(O)=9.18×10^{-5} *13*; α(P)=4.35×10^{-6} *6*
		247.1479 *9*	14.4 *3*	962.940	3+	E1		0.0281	α(K)=0.0237 *4*; α(L)=0.00339 *5*; α(M)=0.000741 *11* α(N)=0.0001699 *24*; α(O)=2.41×10^{-5} *4*; α(P)=1.229×10^{-6} *18* I_γ: from 2006Ap01 (n,γ). Others: 9.0 *15*, from (n,n′γ); and 10 *2*, from ^{162}Ho ε decay (67.0 min).
		321.928[c] *2*	21[c] *1*	888.161	2+	E1		0.01444	α(K)=0.01225 *18*; α(L)=0.001724 *25*; α(M)=0.000376 *6* α(N)=8.64×10^{-5} *12*; α(O)=1.234×10^{-5} *18*; α(P)=6.49×10^{-7} *9* I_γ: weighted average of 20.4 *12*, from (n,n′γ), and 25 *3*, from ^{162}Ho ε decay (67.0 min). From (n,γ), Iγ=21.5 *5*, but γ has two placements there. I_γ: from Iγ(321.9γ)/Iγ(1129.3γ) in ^{162}Ho ε decay (67.0 min) and Iγ(1129.6γ), Iγ=30 *4*. Thus, most, if not all, of the intensity in this peak is associated with this placement.
		944.424 *5*	60 *2*	265.664	4+	E1+M2	−0.10 *+3−5*	0.00153 *18*	α(K)=0.00130 *15*; α(L)=0.000176 *22*; α(M)=3.8×10^{-5} *5* α(N)=8.8×10^{-6} *12*; α(O)=1.29×10^{-6} *17*; α(P)=7.4×10^{-8} *10* I_γ: weighted average of: 59 *3*, from (n,n′γ); 59 *3*, from ^{162}Ho ε decay (67.0 min); and 62 *3*, from (n,γ). Other: 86 *18*, from ^{162}Tb β$^-$ decay. δ: from (n,n′γ). From γγ(θ) in (n,γ), δ(M2/E1)=−0.19 *+14−15* (1980Hu06).
		1129.419 *6*	100 *3*	80.661	2+	E1+M2	+0.05 *+5−3*	0.00102 *7*	α(K)=0.00087 *6*; α(L)=0.000115 *9*; α(M)=2.50×10^{-5} *18*

$^{162}_{66}Dy_{96}$-17

Adopted Levels, Gammas (continued)

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
								α(N)=5.8×10^{-6} *5*; α(O)=8.5×10^{-7} *7*; α(P)=4.9×10^{-8} *4*; α(IPF)=4.51×10^{-6} *7* δ: from (n,n′γ).
1275.772	1$^-$	1195.092 *7*	100 *8*	80.661	2$^+$	E1	9.23×10^{-4}	B(E1)(W.u.)=0.0038 *+10−7* α(K)=0.000772 *11*; α(L)=0.0001017 *15*; α(M)=2.20×10^{-5} *3* α(N)=5.09×10^{-6} *8*; α(O)=7.45×10^{-7} *11*; α(P)=4.32×10^{-8} *6*; α(IPF)=2.17×10^{-5} *3* Mult.,δ: from (n,γ) (1967Ba34), α(K)exp=0.0007 *3*, which is interpreted as E1 with δ(M2/E1)<0.17.
		1275.810 *18*	73.4 *19*	0.0	0$^+$	E1	8.61×10^{-4}	B(E1)(W.u.)=0.0023 *+6−4* α(K)=0.000688 *10*; α(L)=9.04×10^{-5} *13*; α(M)=1.96×10^{-5} *3* α(N)=4.52×10^{-6} *7*; α(O)=6.62×10^{-7} *10*; α(P)=3.85×10^{-8} *6*; α(IPF)=5.77×10^{-5} *8* B(E1)(W.u.) is computed from B(E1)↑=1.47×10^{-4} *25* in (γ,γ′). I$_\gamma$: from 2006Ap01, (n,γ). From ^{162}Tb β^- decay, where coincidence data were used to get the singlet value, Iγ=52 *14*. Mult.: from (n,γ) (2006Ap01) and (α,2nγ) (1982Fi15), α(K)exp=0.00063 *2* and 0.0003 *1*.
1297.006	4$^-$	86.918 *1*	0.42 *3*	1210.089	3$^-$	[M1,E2]	4.1 *6*	α(K)=2.29 *73*; α(L)=1.39 *95*; α(M)=0.33 *24* α(N)=0.074 *52*; α(O)=0.0092 *59*; α(P)=1.26×10^{-4} *62*
		114.245 *5*	5.9 *4*	1182.763	5$^+$	E1	0.216	α(K)=0.181 *3*; α(L)=0.0276 *4*; α(M)=0.00604 *9* α(N)=0.001375 *20*; α(O)=0.000189 *3*; α(P)=8.51×10^{-6} *12*
		236.008 *4*	23.5 *11*	1060.991	4$^+$	E1	0.0316	α(K)=0.0267 *4*; α(L)=0.00383 *6*; α(M)=0.000837 *12* α(N)=0.000192 *3*; α(O)=2.72×10^{-5} *4*; α(P)=1.377×10^{-6} *20* I$_\gamma$: from 2006Ap01 (n,γ). From (n,n′γ), Iγ=23.6 *15*. From (n,γ), 1967Ba34 report Iγ=22 *4*, while 1995Be02 report Iγ=13.8 *23*.
		334.063 *1*	100 *4*	962.940	3$^+$	E1	0.01319	α(K)=0.01119 *16*; α(L)=0.001572 *22*; α(M)=0.000343 *5* α(N)=7.87×10^{-5} *11*; α(O)=1.127×10^{-5} *16*; α(P)=5.95×10^{-7} *9* Mult.,δ: from α(K)exp=0.0076 *27*, γ is E1 [1967Ba34 from (n,γ)]. From $\gamma(\theta)$, the smaller δ(M2/E1)=+0.02 *6* [1982Fi15 from (α,2nγ)], which agrees. From (n,n′γ), 2002Go15 report both δ(M2/E1)=−0.01 *3* and +0.01 *4*. Additional information 12.
		1031.36 *3*	2.8 *1*	265.664	4$^+$			
1324.465	6$^+$	141.73	1.0 *2*	1182.763	5$^+$	[M1,E2]	0.83 *6*	α(K)=0.59 *16*; α(L)=0.183 *74*; α(M)=0.042 *19* α(N)=0.0096 *41*; α(O)=0.00125 *44*; α(P)=3.3×10^{-5} *14* I$_\gamma$: from Iγ(141)/Iγ(263)=0.086 *13* in (n,γ) (1978Ge03). γ not reported by 2006Ap01. Mult.,δ: from Iγ(141)/Iγ(263) in (n,γ) and Alaga-rule considerations, 1978Ge03 deduce δ=0.67 *8*. Additional information 13.

$^{162}_{66}Dy_{96}$-18

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1324.465	6^+	263.472 *1*	11.2 *2*	1060.991	4^+	E2		0.0966	α(K)=0.0703 *10*; α(L)=0.0203 *3*; α(M)=0.00470 *7* α(N)=0.001067 *15*; α(O)=0.0001385 *20*; α(P)=3.57×10^{-6} *5*
		775.941 *3*	100 *6*	548.520	6^+	E2(+M1)	>2.3	0.0056 *4*	α(K)=0.0047 *4*; α(L)=0.00073 *4*; α(M)=0.000162 *9* α(N)=3.72×10^{-5} *20*; α(O)=5.3×10^{-6} *3*; α(P)=2.71×10^{-7} *21* Mult.,δ: from (α,2nγ) (1982Fi15), α(K)exp=0.0035 *5*, which gives primarily E2. From $\gamma\gamma(\theta)$ in (n,γ) (1980Hu06), δ<−2.3 or > +17.9. Additional information 14.
		1058.779 *12*	57.5 *18*	265.664	4^+	E2		0.00271	α(K)=0.00228 *4*; α(L)=0.000335 *5*; α(M)=7.35×10^{-5} *11* α(N)=1.695×10^{-5} *24*; α(O)=2.45×10^{-6} *4*; α(P)=1.315×10^{-7} *19* I_γ: weighted average of: 53 *4*, in (n,n′γ); 59 *2*, in (n,γ); and 50 *9*, in ^{162}Ho ε decay (67.0 min). From Iγ(776γ)/Iγ(1059γ) in (^{7}Li,p4nγ), Iγ=45 *5*. From (^{61}Ni,^{60}Niγ), Iγ=68 *8*. Mult.,δ: placement requires E2 but, from (α,2nγ), α(K)exp=0.0037 *5*, which gives M1 with δ<1.0.
1357.928	3^-	1092.256 *6*	72 *5*	265.664	4^+	E1		1.06×10^{-3}	α(K)=0.000907 *13*; α(L)=0.0001200 *17*; α(M)=2.60×10^{-5} *4* α(N)=6.00×10^{-6} *9*; α(O)=8.78×10^{-7} *13*; α(P)=5.07×10^{-8} *7* I_γ: from (n,γ). From ^{162}Tb β^- decay, Iγ=46 *14*. Mult.,δ: measurements are compatible with pure E1. From α(K)exp=0.0011 *5*, γ is E1 with δ<0.27 [1967Ba34 from (n,γ)]. From $\gamma\gamma(\theta)$ and $\gamma(\theta)$, δ=−0.08 *12* and δ=−0.2 *+5−6* [1980Hu06 from (n,γ) and 1977Ho11 from (n,n′γ)]. 2002Go15, in (n,n′γ), report δ=−0.07 *4*.
		1277.271 *11*	100.0 *19*	80.661	2^+	E1		8.60×10^{-4}	α(K)=0.000686 *10*; α(L)=9.02×10^{-5} *13*; α(M)=1.95×10^{-5} *3* α(N)=4.51×10^{-6} *7*; α(O)=6.61×10^{-7} *10*; α(P)=3.84×10^{-8} *6*; α(IPF)=5.84×10^{-5} *9* I_γ: value from (n,γ). γ is a doublet in most studies. Mult.: from (n,γ) (1967Ba34) and (α,2nγ) (1982Fi15), α(K)exp=0.00056 *28* and 0.0003 *1*, which gives E1 with δ<0.17, but in both cases γ has two placements.
1375.08	10^+	453.85 *9*	100	921.28	8^+	[E2]		0.0196	B(E2)(W.u.)=350 *+24−21* α(K)=0.01561 *22*; α(L)=0.00309 *5*; α(M)=0.000699 *10* α(N)=0.0001597 *23*; α(O)=2.19×10^{-5} *3*; α(P)=8.65×10^{-7} *13*
1390.513	5^-	180.41	0.14	1210.089	3^-				
		329.524 *2*	4.13 *9*	1060.991	4^+	[E1]		0.01364	α(K)=0.01157 *17*; α(L)=0.001626 *23*; α(M)=0.000355 *5* α(N)=8.15×10^{-5} *12*; α(O)=1.165×10^{-5} *17*; α(P)=6.14×10^{-7} *9* I_γ: from (n,γ).
		841.990 *4*	37.1 *11*	548.520	6^+	E1		1.73×10^{-3}	α(K)=0.001479 *21*; α(L)=0.000198 *3*; α(M)=4.30×10^{-5} *6* α(N)=9.90×10^{-6} *14*; α(O)=1.444×10^{-6} *21*; α(P)=8.22×10^{-8} *12*

$^{162}_{66}Dy_{96}$-19

Adopted Levels, Gammas (continued)

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^{π}_i	E_γ [†‡#]	I_γ	E_f	J^{π}_f	Mult.[&]	δ[&b]	α[a]	$I_{(\gamma+ce)}$	Comments
										I_γ: weighted average of: 36.0 *14*, from ^{162}Ho ε decay (67.0 min); and 38.2 *15*, from (n,γ). Other: 60 *5*, from (n,n′γ). From $\gamma\gamma(\theta)$ in (n,γ), δ=0.04 *+38−30* (1980Hu06) if J(1390)=5.
1390.513	5^-	1124.839 *10*	100 *3*	265.664	4^+	E1		1.01×10^{-3}		α(K)=0.000860 *12*; α(L)=0.0001136 *16*; α(M)=2.46×10^{-5} *4* α(N)=5.68×10^{-6} *8*; α(O)=8.32×10^{-7} *12*; α(P)=4.81×10^{-8} *7*; α(IPF)=3.93×10^{-6} *6* Mult.,δ: from α(K)exp=0.0008 *2* in (α,2nγ), mult=E1. From $\gamma\gamma(\theta)$ in (n,γ), $-0.94<\delta<-0.09$ if J=5 (1980Hu06). In (n,n′γ), δ=+0.05 *5*. Additional information 15.
1400.26	0^+	512.0 *2*	8 *4*	888.161	2^+	[E2]		0.01425		α(K)=0.01150 *17*; α(L)=0.00214 *3*; α(M)=0.000482 *7* α(N)=0.0001103 *16*; α(O)=1.524×10^{-5} *22*; α(P)=6.45×10^{-7} *9*
		1319.60 *6*	100	80.661	2^+	E2		1.77×10^{-3}		α(K)=0.001476 *21*; α(L)=0.000209 *3*; α(M)=4.57×10^{-5} *7* α(N)=1.055×10^{-5} *15*; α(O)=1.533×10^{-6} *22*; α(P)=8.53×10^{-8} *12*; α(IPF)=2.32×10^{-5} *4*
		1400.3 *3*		0.0	0^+	E0			0.052 *4*	
1453.468	2^+	177.699 *7*	0.94 *11*	1275.772	1^-	[E1]		0.0664		α(K)=0.0560 *8*; α(L)=0.00818 *12*; α(M)=0.00179 *3* α(N)=0.000409 *6*; α(O)=5.73×10^{-5} *8*; α(P)=2.79×10^{-6} *4*
		392.485 *10*	1.0 *1*	1060.991	4^+	E2		0.0292		α(K)=0.0229 *4*; α(L)=0.00493 *7*; α(M)=0.001122 *16* α(N)=0.000256 *4*; α(O)=3.45×10^{-5} *5*; α(P)=1.246×10^{-6} *18* Mult.: from ^{162}Ho ε decay (evaluator′s combination of 1961Ha23 and 1971Wo09), α(K)exp=0.022, which gives primarily E2.
		490.510 *8*	3.3 *2*	962.940	3^+	E2(+M1)	≥4.1	0.0164 *5*		α(K)=0.0132 *5*; α(L)=0.00247 *5*; α(M)=0.000556 *11* α(N)=0.000127 *3*; α(O)=1.76×10^{-5} *4*; α(P)=7.4×10^{-7} *3*
		565.316 *12*	2.0 *3*	888.161	2^+	[M1,E2]		0.0164 *54*		α(K)=0.0137 *47*; α(L)=0.0021 *5*; α(M)=0.00046 *11* α(N)=0.000107 *25*; α(O)=1.54×10^{-5} *40*; α(P)=8.2×10^{-7} *31*
		1187.777 *12*	70 *5*	265.664	4^+	E2		0.00215		α(K)=0.00181 *3*; α(L)=0.000261 *4*; α(M)=5.71×10^{-5} *8*

Adopted Levels, Gammas (continued)

$\gamma(^{162}$Dy) (continued)

E_i(level)	J_i^π	E_γ[†‡#]	I_γ	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
									α(N)=1.318×10^{-5} *19*; α(O)=1.91×10^{-6} *3*; α(P)=1.047×10^{-7} *15*; α(IPF)=4.14×10^{-6} *6* I_γ: from (n,γ). Others: 60.7 *18*, from ^{162}Ho ε decay (15.0 min); 72.0 *4*, from (n,n′γ); and 84 *16*, from ^{162}Tb β^- decay.
1453.468	2$^+$	1372.790 *21*	100 *4*	80.661	2$^+$	M1+E2(+E0)	+0.40 *15*	0.00241 *9*	α(K)=0.00202 *8*; α(L)=0.000277 *10*; α(M)=6.04×10^{-5} *22* α(N)=1.40×10^{-5} *5*; α(O)=2.06×10^{-6} *8*; α(P)=1.21×10^{-7} *5*; α(IPF)=4.03×10^{-5} *8* Mult.: 2002Go15 report mult=M1+E2. From α(K)exp=0.00230 in (n,γ), 2006Ap01 give mult=M1. However, a ΔK=0 transition such as this is expected to have an E0 contribution. δ: from 2002Go15 (n,n′γ). α: value computed using the listed mult and δ. No contribution from a possible E0 contribution is included.
		1453.77 *21*	3.4 *14*	0.0	0$^+$	[E2]		1.50×10^{-3}	α(K)=0.001227 *18*; α(L)=0.0001715 *24*; α(M)=3.74×10^{-5} *6* α(N)=8.64×10^{-6} *13*; α(O)=1.259×10^{-6} *18*; α(P)=7.09×10^{-8} *10*; α(IPF)=5.83×10^{-5} *9* E_γ: from ^{162}Ho (67.0 min) ε decay. γ not reported by 2006Ap01 in (n,γ). I_γ: from Iγ(1453.7γ)/Iγ(1372.7γ) in ^{162}Ho (67.0 min) ε decay and Iγ(1372.7γ).
1485.671	5$^-$	95.158 *1*	2.0 *2*	1390.513	5$^-$	[M1,E2]		3.0 *3*	α(K)=1.80 *53*; α(L)=0.94 *60*; α(M)=0.22 *15* α(N)=0.050 *33*; α(O)=0.0062 *37*; α(P)=9.9×10^{-5} *47* E_γ: from (n,γ). I_γ: from ^{162}Ho ε decay (67.0 min). Other: 1.7 *1*, from (n,γ).
		161.209 *5*	0.29 *2*	1324.465	6$^+$	[E1]		0.0860	B(E1)(W.u.)=5.02×10^{-8} *47* α(K)=0.0724 *11*; α(L)=0.01067 *15*; α(M)=0.00233 *4* α(N)=0.000533 *8*; α(O)=7.44×10^{-5} *11*; α(P)=3.57×10^{-6} *5* E_γ: from (n,γ). I_γ: from ^{162}Ho ε decay (67.0 min). Other: 0.52 *8*, from (n,γ).
		188.663 *3*	3.8 *5*	1297.006	4$^-$	M1+E2	0.89 *19*	0.350 *14*	B(M1)(W.u.)=2.2×10^{-5} *+6−5*; B(E2)(W.u.)=0.24 *+6−7* α(K)=0.271 *18*; α(L)=0.061 *4*; α(M)=0.0139 *9* α(N)=0.00317 *19*; α(O)=0.000428 *18*; α(P)=1.56×10^{-5}

$^{162}_{66}$Dy$_{96}$-21

$\gamma(^{162}\mathrm{Dy})$ (continued)

E_i(level)	E_γ [†‡#]	I_γ	E_f	J^π_f	Mult. [&]	α [a]	Comments
							14 E_γ: from (n,γ). I_γ: from ^{162}Ho ε decay (67.0 min). Other: 0.94 *8*, from (n,γ). Mult.: from ^{162}Ho ε decay (67.0 min) (evaluator's combination of 1961Ha23 and 1971Wo09), α(K)exp=0.35, which gives M1. δ: from α(K)exp in (n,γ) (2006Ap01).
1485.671	275.582 *4*	3.05 *8*	1210.089	3^-	E2	0.0839	B(E2)(W.u.)=0.0661 *43* α(K)=0.0617 *9*; α(L)=0.01715 *24*; α(M)=0.00397 *6* α(N)=0.000900 *13*; α(O)=0.0001173 *17*; α(P)=3.16×10^{-6} *5* E_γ: from (n,γ). E_γ,I_γ: from ^{162}Ho ε decay (67.0 min). From (n,γ), Iγ=3.05 *18*.
	302.909[c] *2*	1.26[c] *3*	1182.763	5^+	E1	0.01679	B(E1)(W.u.)=3.30×10^{-8} *21* α(K)=0.01423 *20*; α(L)=0.00201 *3*; α(M)=0.000439 *7* α(N)=0.0001007 *14*; α(O)=1.437×10^{-5} *21*; α(P)=7.51×10^{-7} *11* E_γ: from (n,γ). I_γ: from ^{162}Ho ε decay (67.0 min). Other: 1.42 *6*, from (n,γ). Mult.: from ^{162}Ho ε decay (67.0 min) (evaluator's combination of 1961Ha23 and 1971Wo09), α(K)exp=0.025, which gives primarily E1.
	424.676 *4*	1.51 *8*	1060.991	4^+	[E1]	0.00745	B(E1)(W.u.)=1.44×10^{-8} *12* α(K)=0.00633 *9*; α(L)=0.000877 *13*; α(M)=0.000191 *3* α(N)=4.40×10^{-5} *7*; α(O)=6.33×10^{-6} *9*; α(P)=3.42×10^{-7} *5* E_γ: from (n,γ). I_γ: from ^{162}Ho ε decay (67.0 min). Other: 1.80 *7*, from (n,γ).
	937.144 *7*	43.7 *8*	548.520	6^+	E1	1.41×10^{-3}	B(E1)(W.u.)=3.85×10^{-8} *+26−23* α(K)=0.001205 *17*; α(L)=0.0001604 *23*; α(M)=3.48×10^{-5} *5* α(N)=8.03×10^{-6} *12*; α(O)=1.172×10^{-6} *17*; α(P)=6.72×10^{-8} *10* E_γ: from (n,γ). I_γ: weighted average of: 40 *3*, from (n,n′γ); 44.0 *9*, from ^{162}Ho ε decay (67.0 min); and 45 *3*, from (n,γ). Mult.: from ^{162}Ho ε decay (67.0 min) (evaluator's combination of 1961Jo10 and 1971Wo09) and (α,2nγ) (1982Fi15), α(K)exp=0.016 and 0.0014 *4*, respectively, which give E1. Additional information 16.
	1219.98 *3*	100 *3*	265.664	4^+	E1	9.01×10^{-4}	B(E1)(W.u.)=4.00×10^{-8} *+25−23* α(K)=0.000744 *11*; α(L)=9.79×10^{-5} *14*; α(M)=2.12×10^{-5} *3* α(N)=4.90×10^{-6} *7*; α(O)=7.17×10^{-7} *10*; α(P)=4.16×10^{-8} *6*; α(IPF)=3.19×10^{-5} *5* E_γ: from (n,γ). Mult.,δ: from (n,γ) (1967Ba34) and ^{162}Ho ε decay (67.0 min) (evaluator's combination of 1961Jo10 and 1971Wo09), α(K)exp=0.0006 *3* and 0.009,

Adopted Levels, Gammas (continued)

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
									interpretation of the former is E1 with δ<0.17 and from $\gamma\gamma(\theta)$ in (n,γ), δ=−0.31 +*23*−*40* (1980Hu06). Adopted $\delta\leq$0.18.
1490.39	7^+	307.7 *2*	25 *3*	1182.763	5^+	[E2]		0.0597	α(K)=0.0450 *7*; α(L)=0.01145 *17*; α(M)=0.00263 *4* α(N)=0.000598 *9*; α(O)=7.89×10^{-5} *12*; α(P)=2.35×10^{-6} *4* I_γ: from (α,2nγ). Other: 16 *2* from (^{7}Li,p4nγ); and 30, from Iγ(307γ)/Iγ(941γ) in (^{162}Dy,^{162}Dy′γ).
		569.3 *1*	16 *2*	921.28	8^+	[M1,E2]		0.0161 *53*	α(K)=0.0135 *47*; α(L)=0.0021 *5*; α(M)=0.00046 *11* α(N)=0.000105 *25*; α(O)=1.51×10^{-5} *39*; α(P)=8.0×10^{-7} *30* I_γ: from (α,2nγ). Other: 19 *2*, from Iγ(569γ)/Iγ(941γ) in (^{162}Dy,^{162}Dy′γ).
		941.9 *1*	100 *4*	548.520	6^+	E2(+M1)	>1.2	0.0040 *6*	α(K)=0.0034 *5*; α(L)=0.00049 *6*; α(M)=0.000109 *13* α(N)=2.5×10^{-5} *3*; α(O)=3.6×10^{-6} *5*; α(P)=2.0×10^{-7} *3* Mult.,δ: from 1982Fi15, (α,2nγ).
1518.426	5^-	160.489 *4*	0.62 *4*	1357.928	3^-	[E2]		0.499	α(K)=0.304 *5*; α(L)=0.1500 *21*; α(M)=0.0355 *5* α(N)=0.00799 *12*; α(O)=0.000991 *14*; α(P)=1.376×10^{-5} *20*
		457.49 *4*	0.15 *4*	1060.991	4^+	[E1]		0.00628	α(K)=0.00534 *8*; α(L)=0.000737 *11*; α(M)=0.0001605 *23* α(N)=3.69×10^{-5} *6*; α(O)=5.32×10^{-6} *8*; α(P)=2.90×10^{-7} *4*
		969.908 *6*	41.9 *15*	548.520	6^+	E1		1.32×10^{-3}	α(K)=0.001130 *16*; α(L)=0.0001501 *21*; α(M)=3.26×10^{-5} *5* α(N)=7.51×10^{-6} *11*; α(O)=1.097×10^{-6} *16*; α(P)=6.30×10^{-8} *9* I_γ: from 2006Ap01 (n,γ). From (α,2nγ), 2006Ap01 report Iγ=110 *45*. δ: from $\gamma\gamma(\theta)$ in (n,γ), δ=0.24 +*39*−*21* (1980Hu06), if J(1518)=5. Additional information 17.
		1252.74 *3*	100 *8*	265.664	4^+	E1		8.76×10^{-4}	α(K)=0.000710 *10*; α(L)=9.34×10^{-5} *13*; α(M)=2.02×10^{-5} *3* α(N)=4.67×10^{-6} *7*; α(O)=6.84×10^{-7} *10*; α(P)=3.97×10^{-8} *6*; α(IPF)=4.68×10^{-5} *7* Mult.,δ: from (α,2nγ) (1982Fi15), α(K)exp=0.0003 *1*, which gives E1.
1530.127	6^-	139.607 *5*		1390.513	5^-				
		233.6 *1*	16 *5*	1297.006	4^-	[E2]		0.1419	α(K)=0.1002 *14*; α(L)=0.0323 *5*; α(M)=0.00752 *11* α(N)=0.001701 *24*; α(O)=0.000218 *3*; α(P)=4.95×10^{-6} *7* E_γ: placed here only in (α,2nγ) and (n,n′γ). I_γ: from (n,n′γ).
		347.52[c] *10*	<100[c]	1182.763	5^+	[E1]		0.01198	α(K)=0.01017 *15*; α(L)=0.001425 *20*; α(M)=0.000311 *5* α(N)=7.14×10^{-5} *10*; α(O)=1.023×10^{-5} *15*; α(P)=5.42×10^{-7} *8* I_γ: from (n,n′γ), where γ is doubly placed. Additional information 18.

$^{162}_{66}Dy_{96}$-23

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1535.664	4^+	238.673 *6*	0.12 *2*	1297.006	4^-	[E1]		0.0307	α(K)=0.0260 *4*; α(L)=0.00372 *6*; α(M)=0.000813 *12* α(N)=0.000186 *3*; α(O)=2.64×10^{-5} *4*; α(P)=1.339×10^{-6} *19*
		352.897 *6*	0.90 *16*	1182.763	5^+	E2(+M1)	>1.3	0.046 *7*	α(K)=0.036 *6*; α(L)=0.0074 *4*; α(M)=0.00168 *7* α(N)=0.000383 *17*; α(O)=5.2×10^{-5} *4*; α(P)=2.0×10^{-6} *4*
		474.676 *4*	9.0 *6*	1060.991	4^+	M1+E2	1.64 *13*	0.0219 *7*	α(K)=0.0179 *6*; α(L)=0.00307 *7*; α(M)=0.000685 *14* α(N)=0.000157 *4*; α(O)=2.21×10^{-5} *5*; α(P)=1.04×10^{-6} *4*
		572.724 *1*	43.5 *18*	962.940	3^+	E2(+M1)	>2.8	0.0113 *6*	α(K)=0.0093 *6*; α(L)=0.00160 *6*; α(M)=0.000358 *13* α(N)=8.2×10^{-5} *3*; α(O)=1.15×10^{-5} *5*; α(P)=5.3×10^{-7} *4*
		647.502 *2*	100 *2*	888.161	2^+	E2		0.00797	B(E2)(W.u.)=1.15 *35* α(K)=0.00655 *10*; α(L)=0.001105 *16*; α(M)=0.000246 *4* α(N)=5.65×10^{-5} *8*; α(O)=7.95×10^{-6} *12*; α(P)=3.73×10^{-7} *6* B(E2)(W.u.) value is that reported by 2001Wu05, from (^{162}Dy,^{162}Dy′γ).
		987.15 *22*	1.0 *4*	548.520	6^+	(E2)		0.00313	α(K)=0.00263 *4*; α(L)=0.000392 *6*; α(M)=8.62×10^{-5} *12* α(N)=1.98×10^{-5} *3*; α(O)=2.86×10^{-6} *4*; α(P)=1.515×10^{-7} *22*
1570.912	3^-	212.983 *1*	59 *1*	1357.928	3^-	M1+E2	0.47 *7*	0.269 *6*	α(K)=0.221 *6*; α(L)=0.0371 *8*; α(M)=0.00826 *19* α(N)=0.00190 *4*; α(O)=0.000270 *5*; α(P)=1.34×10^{-5} *5*
		295.141 *1*	100 *2*	1275.772	1^-	(E2)		0.0678	α(K)=0.0506 *7*; α(L)=0.01331 *19*; α(M)=0.00307 *5* α(N)=0.000697 *10*; α(O)=9.15×10^{-5} *13*; α(P)=2.63×10^{-6} *4*
		360.824 *3*	2.5 *1*	1210.089	3^-	M1(+E2)	<0.64	0.065 *5*	α(K)=0.054 *5*; α(L)=0.0081 *3*; α(M)=0.00179 *6* α(N)=0.000412 *14*; α(O)=6.0×10^{-5} *3*; α(P)=3.3×10^{-6} *3*
		422.692 *9*	3.5 *4*	1148.232	2^-	E2		0.0238	α(K)=0.0188 *3*; α(L)=0.00387 *6*; α(M)=0.000878 *13* α(N)=0.000200 *3*; α(O)=2.73×10^{-5} *4*; α(P)=1.033×10^{-6} *15*
		682.77 *8*	0.6 *3*	888.161	2^+	[E1]		0.00263	α(K)=0.00225 *4*; α(L)=0.000304 *5*; α(M)=6.60×10^{-5} *10* α(N)=1.521×10^{-5} *22*; α(O)=2.21×10^{-6} *3*; α(P)=1.242×10^{-7} *18*
1574.293	4^+	120.819 *6*	0.21 *4*	1453.468	2^+	[E2]		1.357	α(K)=0.683 *10*; α(L)=0.519 *8*; α(M)=0.1237 *18* α(N)=0.0278 *4*; α(O)=0.00338 *5*; α(P)=2.90×10^{-5} *4*
		216.365 *13*	0.25 *3*	1357.928	3^-	[E1]		0.0396	α(K)=0.0334 *5*; α(L)=0.00482 *7*; α(M)=0.001054 *15* α(N)=0.000241 *4*; α(O)=3.41×10^{-5} *5*; α(P)=1.707×10^{-6} *24*
		277.285 *12*	0.20 *3*	1297.006	4^-	[E1]		0.0210	α(K)=0.01774 *25*; α(L)=0.00252 *4*; α(M)=0.000550 *8* α(N)=0.0001261 *18*; α(O)=1.80×10^{-5} *3*; α(P)=9.28×10^{-7} *13*
		364.212 *8*	0.48 *3*	1210.089	3^-	[E1]		0.01070	α(K)=0.00908 *13*; α(L)=0.001270 *18*; α(M)=0.000277 *4* α(N)=6.36×10^{-5} *9*; α(O)=9.12×10^{-6} *13*; α(P)=4.86×10^{-7} *7*
		391.541 *14*	0.92 *8*	1182.763	5^+	[M1,E2]		0.043 *14*	α(K)=0.035 *13*; α(L)=0.0059 *9*; α(M)=0.00130 *18* α(N)=0.00030 *5*; α(O)=4.3×10^{-5} *8*; α(P)=2.08×10^{-6} *83*
		513.314 *8*	2.1 *1*	1060.991	4^+	[M1,E2]		0.0210 *69*	α(K)=0.0175 *61*; α(L)=0.0027 *6*; α(M)=0.00060 *13* α(N)=0.00014 *3*; α(O)=2.0×10^{-5} *5*; α(P)=1.04×10^{-6} *40*
		611.23 *5*	0.50 *8*	962.940	3^+	[M1,E2]		0.0135 *44*	α(K)=0.0113 *39*; α(L)=0.0017 *5*; α(M)=0.00038 *9* α(N)=8.7×10^{-5} *21*; α(O)=1.25×10^{-5} *33*; α(P)=6.7×10^{-7} *25*

$^{162}_{66}Dy_{96}$-24

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J_i^π	E_γ[†‡#]	I_γ	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
1574.293	4^+	686.15 *6*	1.2 *3*	888.161	2^+	[E2]		0.00695	α(K)=0.00574 *8*; α(L)=0.000948 *14*; α(M)=0.000211 *3* α(N)=4.84×10^{-5} *7*; α(O)=6.84×10^{-6} *10*; α(P)=3.28×10^{-7} *5*
		1025.753 *14*	20.8 *8*	548.520	6^+	E2		0.00289	α(K)=0.00243 *4*; α(L)=0.000359 *5*; α(M)=7.90×10^{-5} *11* α(N)=1.82×10^{-5} *3*; α(O)=2.62×10^{-6} *4*; α(P)=1.401×10^{-7} *20*
		1308.627 *15*	100 *8*	265.664	4^+	M1(+E2)	+0.04 *+8−10*	0.00282 *5*	α(K)=0.00238 *4*; α(L)=0.000326 *5*; α(M)=7.10×10^{-5} *11* α(N)=1.643×10^{-5} *24*; α(O)=2.42×10^{-6} *4*; α(P)=1.426×10^{-7} *22*; α(IPF)=2.44×10^{-5} *4*
1575.623	6^-	89.98 *10*	102 *3*	1485.671	5^-	M1+E2	0.53 *3*	3.42 *6*	α(K)=2.45 *5*; α(L)=0.75 *4*; α(M)=0.174 *8* α(N)=0.0394 *18*; α(O)=0.00514 *21*; α(P)=0.000146 *3* E_γ,I_γ: from ^{162}Ho ε decay (67.0 min). Additional information 19.
		251.10 *8*	11 *3*	1324.465	6^+	[E1]		0.0270	α(K)=0.0228 *4*; α(L)=0.00326 *5*; α(M)=0.000711 *10* α(N)=0.0001630 *23*; α(O)=2.31×10^{-5} *4*; α(P)=1.182×10^{-6} *17*
		278.49[c] *12*	≤53[c]	1297.006	4^-				E_γ,I_γ: from ^{162}Ho ε decay (67.0 min).
		392.86 *4*	100 *3*	1182.763	5^+	[E1]		0.00894	α(K)=0.00759 *11*; α(L)=0.001056 *15*; α(M)=0.000230 *4* α(N)=5.29×10^{-5} *8*; α(O)=7.61×10^{-6} *11*; α(P)=4.08×10^{-7} *6* E_γ: from ^{162}Ho ε decay (67.0 min). Additional information 20.
		1026.93 *20*	27 *3*	548.520	6^+				E_γ,I_γ: from ^{162}Ho ε decay (67.0 min).
		1310.05 *10*	46 *3*	265.664	4^+				E_γ,I_γ: from ^{162}Ho ε decay (67.0 min).
1634.415	5^+	98.753 *1*	17 *1*	1535.664	4^+	M1+E2	0.50 *4*	2.55	α(K)=1.90 *4*; α(L)=0.51 *3*; α(M)=0.116 *7* α(N)=0.0264 *15*; α(O)=0.00350 *17*; α(P)=0.000114 *3*
		309.952 *5*	1.6 *2*	1324.465	6^+	[M1,E2]		0.081 *23*	α(K)=0.066 *22*; α(L)=0.0119 *8*; α(M)=0.00266 *11* α(N)=0.00061 *3*; α(O)=8.5×10^{-5} *9*; α(P)=3.8×10^{-6} *16*
		337.406 *9*	0.45 *9*	1297.006	4^-	[E1]		0.01288	α(K)=0.01092 *16*; α(L)=0.001533 *22*; α(M)=0.000334 *5* α(N)=7.68×10^{-5} *11*; α(O)=1.099×10^{-5} *16*; α(P)=5.81×10^{-7} *9*
		451.649 *2*	20 *2*	1182.763	5^+	E2(+M1)	>1.8	0.0221 *23*	α(K)=0.0178 *20*; α(L)=0.00332 *19*; α(M)=0.00075 *4* α(N)=0.000171 *9*; α(O)=2.36×10^{-5} *15*; α(P)=1.01×10^{-6} *14*
		573.422 *2*	77.7 *21*	1060.991	4^+	E2(+M1)	>2.2	0.0116 *9*	α(K)=0.0095 *8*; α(L)=0.00163 *9*; α(M)=0.000363 *18* α(N)=8.3×10^{-5} *5*; α(O)=1.17×10^{-5} *7*; α(P)=5.4×10^{-7} *6*
		671.475 *2*	100 *3*	962.940	3^+	E2		0.00731	α(K)=0.00603 *9*; α(L)=0.001003 *14*; α(M)=0.000223 *4* α(N)=5.13×10^{-5} *8*; α(O)=7.23×10^{-6} *11*; α(P)=3.44×10^{-7} *5*
1637.196	1^-	279.266 *14*	1.2 *3*	1357.928	3^-	[E2]		0.0805	α(K)=0.0594 *9*; α(L)=0.01633 *23*; α(M)=0.00377 *6* α(N)=0.000856 *12*; α(O)=0.0001118 *16*; α(P)=3.05×10^{-6} *5*
		361.419 *2*	6.4 *8*	1275.772	1^-	[M1,E2]		0.053 *16*	α(K)=0.043 *15*; α(L)=0.0074 *10*; α(M)=0.00166 *18* α(N)=0.00038 *5*; α(O)=5.4×10^{-5} *9*; α(P)=2.6×10^{-6} *11*
		427.110 *2*	14.7 *8*	1210.089	3^-	E2		0.0231	α(K)=0.0183 *3*; α(L)=0.00375 *6*; α(M)=0.000849 *12* α(N)=0.000194 *3*; α(O)=2.64×10^{-5} *4*; α(P)=1.006×10^{-6} *14*
		488.963 *5*	15.4 *12*	1148.232	2^-	E2+M1		0.0238 *77*	α(K)=0.0198 *69*; α(L)=0.0031 *7*; α(M)=0.00069 *14* α(N)=0.00016 *4*; α(O)=2.3×10^{-5} *6*; α(P)=1.17×10^{-6} *46*

$^{162}_{66}Dy_{96}$-25

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	$I_{(\gamma+ce)}$	Comments
1637.196	1^-	1556.50 *7*	100 *14*	80.661	2^+	E1		8.12×10^{-4}		α(K)=0.000489 *7*; α(L)=6.38×10^{-5} *9*; α(M)=1.382×10^{-5} *20* α(N)=3.19×10^{-6} *5*; α(O)=4.68×10^{-7} *7*; α(P)=2.74×10^{-8} *4*; α(IPF)=0.000242 *4*
		1637.32 *22*	24 *2*	0.0	0^+					I_γ: from (n,n′γ). γ not reported in (n,γ).
1637.92	7^-	716.3 *1*	35 *5*	921.28	8^+					E_γ,I_γ: from (α,2nγ).
		1088.6 *2*	100 *10*	548.520	6^+	E1		1.07×10^{-3}		α(K)=0.000913 *13*; α(L)=0.0001207 *17*; α(M)=2.62×10^{-5} *4* α(N)=6.04×10^{-6} *9*; α(O)=8.83×10^{-7} *13*; α(P)=5.10×10^{-8} *8* Mult.: from 1982Fi15 (α,2nγ), α(K)exp=0.0004 *1*, which gives mult=E1. Additional information 21.
1666.27	0^+	1585.6[c] *2*	[c]	80.661	2^+					I_γ: γ is doubly placed in (n,n′γ).
1669.085	4^-	98.175 *6*	0.17 *6*	1570.912	3^-	[M1,E2]		2.71 *20*		α(K)=1.65 *48*; α(L)=0.82 *51*; α(M)=0.19 *13* α(N)=0.044 *28*; α(O)=0.0055 *32*; α(P)=9.1×10^{-5} *42*
		150.653 *5*	15.3 *4*	1518.426	5^-	M1+E2	0.92 *9*	0.689 *12*		α(K)=0.509 *16*; α(L)=0.140 *6*; α(M)=0.0323 *14* α(N)=0.0073 *4*; α(O)=0.00096 *4*; α(P)=2.87×10^{-5} *13*
		278.572 *1*	10.4 *2*	1390.513	5^-	M1(+E2)	<0.39	0.134 *5*		α(K)=0.113 *4*; α(L)=0.01676 *24*; α(M)=0.00369 *6* α(N)=0.000852 *12*; α(O)=0.0001240 *19*; α(P)=6.9×10^{-6} *3*
		311.157 *1*	100 *5*	1357.928	3^-	M1		0.1024		α(K)=0.0865 *13*; α(L)=0.01245 *18*; α(M)=0.00273 *4* α(N)=0.000631 *9*; α(O)=9.26×10^{-5} *13*; α(P)=5.34×10^{-6} *8*
		372.074 *3*	4.6 *1*	1297.006	4^-	M1(+E2)	<0.48	0.061 *3*		α(K)=0.051 *3*; α(L)=0.00755 *21*; α(M)=0.00166 *4* α(N)=0.000383 *10*; α(O)=5.59×10^{-5} *18*; α(P)=3.14×10^{-6} *19*
		458.991[c] *2*	8.8[c] *11*	1210.089	3^-	M1		0.0370		α(K)=0.0313 *5*; α(L)=0.00445 *7*; α(M)=0.000974 *14* α(N)=0.000225 *4*; α(O)=3.31×10^{-5} *5*; α(P)=1.92×10^{-6} *3*
		486.322[c] *8*	1.7[c] *3*	1182.763	5^+	[E1]		0.00547		α(K)=0.00465 *7*; α(L)=0.000640 *9*; α(M)=0.0001393 *20* α(N)=3.21×10^{-5} *5*; α(O)=4.63×10^{-6} *7*; α(P)=2.53×10^{-7} *4*
		520.890 *18*	0.61 *11*	1148.232	2^-	[E2]		0.01363		α(K)=0.01102 *16*; α(L)=0.00204 *3*; α(M)=0.000458 *7* α(N)=0.0001048 *15*; α(O)=1.450×10^{-5} *21*; α(P)=6.19×10^{-7} *9*

$^{162}_{66}Dy_{96}$-26

Adopted Levels, Gammas (continued)

γ(^{162}Dy) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†‡#]	I$_\gamma$	E$_f$	J$^\pi_f$	Mult.[&]	δ[&b]	α[a]	Comments
1669.085	4⁻	1403.25 *11*	23 *8*	265.664	4⁺	E1		8.13×10^{-4}	α(K)=0.000583 *9*; α(L)=7.63×10^{-5} *11*; α(M)=1.653×10^{-5} *24* α(N)=3.82×10^{-6} *6*; α(O)=5.60×10^{-7} *8*; α(P)=3.27×10^{-8} *5*; α(IPF)=0.0001333 *19*
1670.505	8⁺	345.9 *1*	56 *4*	1324.465	6⁺	E2		0.0421	α(K)=0.0324 *5*; α(L)=0.00757 *11*; α(M)=0.001731 *25* α(N)=0.000394 *6*; α(O)=5.25×10^{-5} *8*; α(P)=1.728×10^{-6} *25* I$_\gamma$: from (^{7}Li,p4nγ). Other: 58 *8*, from (α,2nγ).
		749.1 *1*	100 *4*	921.28	8⁺	E2+M1	1.5 *6*	0.0072 *13*	α(K)=0.0061 *11*; α(L)=0.00092 *13*; α(M)=0.00020 *3* α(N)=4.7×10^{-5} *7*; α(O)=6.7×10^{-6} *10*; α(P)=3.6×10^{-7} *7* Mult.: from (α,2nγ), α(K)exp=0.0062 *9*, which gives δ=1.5 *+10−5*. Additional information 22.
		1121.9 *2*	52 *4*	548.520	6⁺	E2		0.00241	α(K)=0.00203 *3*; α(L)=0.000295 *5*; α(M)=6.47×10^{-5} *9* α(N)=1.491×10^{-5} *21*; α(O)=2.16×10^{-6} *3*; α(P)=1.172×10^{-7} *17*; α(IPF)=6.30×10^{-7} *10* I$_\gamma$: from (^{7}Li,p4nγ). Other: 62 *12*, from (α,2nγ).
1683.35	7⁻	107.7 *2*		1575.623	6⁻				
		197.4 *2*	5	1485.671	5⁻				
		762.1 *2*	31 *4*	921.28	8⁺	[E1]		0.00211	α(K)=0.00180 *3*; α(L)=0.000242 *4*; α(M)=5.25×10^{-5} *8* α(N)=1.211×10^{-5} *17*; α(O)=1.762×10^{-6} *25*; α(P)=9.98×10^{-8} *14* E$_\gamma$: from (α,2nγ). I$_\gamma$: weighted average of: 32 *4* (^{7}Li,p4nγ); and 30 *5* (α,2nγ). Mult.,δ: from (α,2nγ), α(K)exp=0.0061 *9*, which gives E2+M1 with δ=1.4, or E1+M2 with δ=0.5. δ: from γ(θ) in (α,2nγ), smaller δ=+0.10 *8*.
		1134.7 *2*	100 *4*	548.520	6⁺	E1		9.95×10^{-4}	α(K)=0.000847 *12*; α(L)=0.0001118 *16*; α(M)=2.42×10^{-5} *4* α(N)=5.59×10^{-6} *8*; α(O)=8.18×10^{-7} *12*; α(P)=4.74×10^{-8} *7*; α(IPF)=5.30×10^{-6} *8* E$_\gamma$: from (α,2nγ). Mult.: from (α,2nγ), α(K)exp=0.0007 *2*, which gives mult=E1. Additional information 23.
1691.340	2⁻	394.333 *3*	12.1 *6*	1297.006	4⁻	E2		0.0289	α(K)=0.0226 *4*; α(L)=0.00486 *7*; α(M)=0.001105 *16* α(N)=0.000252 *4*; α(O)=3.40×10^{-5} *5*; α(P)=1.231×10^{-6} *18*
		415.569 *3*	56 *4*	1275.772	1⁻	M1+E2		0.036 *12*	α(K)=0.030 *11*; α(L)=0.0049 *9*; α(M)=0.00110 *17* α(N)=0.00025 *4*; α(O)=3.6×10^{-5} *7*; α(P)=1.78×10^{-6} *71*
		543.107 *3*	100 *4*	1148.232	2⁻	M1+E2		0.0182 *59*	α(K)=0.0152 *53*; α(L)=0.0023 *6*; α(M)=0.00052 *12* α(N)=0.00012 *3*; α(O)=1.7×10^{-5} *5*; α(P)=9.0×10^{-7} *35*
		728.384[c] *15*	98[c] *10*	962.940	3⁺	E1		0.00231	α(K)=0.00197 *3*; α(L)=0.000265 *4*; α(M)=5.77×10^{-5} *8* α(N)=1.329×10^{-5} *19*; α(O)=1.93×10^{-6} *3*; α(P)=1.091×10^{-7} *16*

Adopted Levels, Gammas (continued)

$\gamma(^{162}$Dy) (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1728.318	2^+	154.026 4	0.57 7	1574.293	4^+	[E2]		0.575	α(K)=0.343 5; α(L)=0.179 3; α(M)=0.0424 6 α(N)=0.00954 14; α(O)=0.001179 17; α(P)=1.537×10^{-5} 22
		370.389 3	3.5 2	1357.928	3^-	[E1]		0.01028	α(K)=0.00873 13; α(L)=0.001219 17; α(M)=0.000266 4 α(N)=6.11×10^{-5} 9; α(O)=8.76×10^{-6} 13; α(P)=4.68×10^{-7} 7
		452.535 8	3.2 6	1275.772	1^-	[E1]		0.00643	α(K)=0.00547 8; α(L)=0.000756 11; α(M)=0.0001646 23 α(N)=3.79×10^{-5} 6; α(O)=5.46×10^{-6} 8; α(P)=2.97×10^{-7} 5
		840.20 6	3.9 15	888.161	2^+	[M1,E2]		0.0063 19	α(K)=0.0053 16; α(L)=7.6×10^{-4} 20; α(M)=0.00017 5 α(N)=3.87×10^{-5} 97; α(O)=5.6×10^{-6} 15; α(P)=3.1×10^{-7} 11
		1462.69[c] 8	32[c] 6	265.664	4^+	(E2)		1.49×10^{-3}	α(K)=0.001213 17; α(L)=0.0001694 24; α(M)=3.70×10^{-5} 6 α(N)=8.54×10^{-6} 12; α(O)=1.244×10^{-6} 18; α(P)=7.01×10^{-8} 10; α(IPF)=6.11×10^{-5} 9
		1647.62 7	100 9	80.661	2^+	M1(+E0,E2)		0.0015 3	α(K)=0.00118 21; α(L)=0.00016 3; α(M)=3.5×10^{-5} 6 α(N)=8.1×10^{-6} 14; α(O)=1.19×10^{-6} 22; α(P)=7.0×10^{-8} 14; α(IPF)=0.000139 12 Mult.: from α(K)exp=0.0018 1 in (n,γ), 2006Ap01 give mult=M1. However, a ΔK=0 transition such as this is unlikely to Be pure M1. Some E0+E2 contribution is expected. From (n,n′γ), 2002Go15 report δ(E2/M1)=−0.20 +15−18 or +4.3 +57−18.
		1728.58 19	54 8	0.0	0^+	[E2]		1.20×10^{-3}	α(K)=0.000888 13; α(L)=0.0001217 17; α(M)=2.65×10^{-5} 4 α(N)=6.12×10^{-6} 9; α(O)=8.95×10^{-7} 13; α(P)=5.13×10^{-8} 8; α(IPF)=0.0001615 23 E_γ: from (n,n′γ). γ not reported by 2006Ap01 in (n,γ). I_γ: from Iγ(1728.5γ)/Iγ(1647.6γ) in (n,n′γ) and Iγ(1647.6γ).
1738.999	3^-	168.093 4	2.5 3	1570.912	3^-	M1(+E2)	<0.73	0.528 23	α(K)=0.43 4; α(L)=0.077 10; α(M)=0.0173 25 α(N)=0.0040 6; α(O)=0.00056 6; α(P)=2.6×10^{-5} 3
		348.49 3	5.1 13	1390.513	5^-	(E2)		0.0412	α(K)=0.0317 5; α(L)=0.00737 11; α(M)=0.001686 24 α(N)=0.000384 6; α(O)=5.12×10^{-5} 8; α(P)=1.694×10^{-6} 24
		381.069 3	4.4 3	1357.928	3^-	M1+E2	0.7 4	0.051 7	α(K)=0.042 7; α(L)=0.0067 5; α(M)=0.00147 9 α(N)=0.000340 22; α(O)=4.9×10^{-5} 4; α(P)=2.5×10^{-6} 5
		441.988 5	5.0 3	1297.006	4^-	M1+E2	0.7 4	0.034 5	α(K)=0.029 5; α(L)=0.0044 4; α(M)=0.00097 8 α(N)=0.000224 19; α(O)=3.2×10^{-5} 4; α(P)=1.7×10^{-6} 3
		463.224 4	13 1	1275.772	1^-	E2		0.0185	α(K)=0.01481 21; α(L)=0.00290 4; α(M)=0.000655 10 α(N)=0.0001498 21; α(O)=2.05×10^{-5} 3; α(P)=8.22×10^{-7} 12
		528.901 5	100 3	1210.089	3^-	M1(+E2)	<0.045	0.0257	α(K)=0.0218 3; α(L)=0.00308 5; α(M)=0.000674 10 α(N)=0.0001559 22; α(O)=2.29×10^{-5} 4; α(P)=1.330×10^{-6} 19
		590.767 3	50.7 13	1148.232	2^-	[M1,E2]		0.0147 48	α(K)=0.0123 42; α(L)=0.0019 5; α(M)=0.00041 10 α(N)=9.5×10^{-5} 23; α(O)=1.37×10^{-5} 36; α(P)=7.3×10^{-7} 28

From ENSDF

$^{162}_{66}$Dy$_{96}$-28

Adopted Levels, Gammas (continued)

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1738.999	3^-	678.009 *3*	83 *3*	1060.991	4^+	E1		0.00267	α(K)=0.00228 *4*; α(L)=0.000308 *5*; α(M)=6.70×10^{-5} *10* α(N)=1.543×10^{-5} *22*; α(O)=2.24×10^{-6} *4*; α(P)=1.259×10^{-7} *18*
		1473.26 *5*	63 *7*	265.664	4^+	E1		8.07×10^{-4}	α(K)=0.000536 *8*; α(L)=7.01×10^{-5} *10*; α(M)=1.519×10^{-5} *22* α(N)=3.51×10^{-6} *5*; α(O)=5.14×10^{-7} *8*; α(P)=3.01×10^{-8} *5*; α(IPF)=0.000182 *3*
1745.716	1^+	292.241 *8*	1.7 *2*	1453.468	2^+	[M1,E2]		0.096 *26*	α(K)=0.077 *26*; α(L)=0.0143 *5*; α(M)=0.00321 *6* α(N)=0.000735 *17*; α(O)=0.000102 *8*; α(P)=4.5×10^{-6} *18*
		597.43 *5*	3.8 *6*	1148.232	2^-	[E1]		0.00348	α(K)=0.00297 *5*; α(L)=0.000404 *6*; α(M)=8.79×10^{-5} *13* α(N)=2.02×10^{-5} *3*; α(O)=2.93×10^{-6} *5*; α(P)=1.633×10^{-7} *23*
		857.562 *9*	100 *6*	888.161	2^+	M1(+E2)	<0.29	0.00758 *18*	α(K)=0.00643 *15*; α(L)=0.000896 *19*; α(M)=0.000196 *5* α(N)=4.53×10^{-5} *10*; α(O)=6.66×10^{-6} *15*; α(P)=3.89×10^{-7} *10*
		1665.17 *11*	63 *15*	80.661	2^+	M1,E2		0.00150 *25*	α(K)=0.00115 *21*; α(L)=0.00016 *3*; α(M)=3.4×10^{-5} *6* α(N)=7.9×10^{-6} *14*; α(O)=1.17×10^{-6} *21*; α(P)=6.8×10^{-8} *13*; α(IPF)=0.000147 *13*
1751.881	6^+	117.467 *1*	65 *3*	1634.415	5^+	E2(+M1)	>2.3	1.503	α(K)=0.78 *5*; α(L)=0.56 *4*; α(M)=0.133 *9* α(N)=0.0298 *18*; α(O)=0.00363 *20*; α(P)=3.5×10^{-5} *4*
		216.193[c] *13*	41.0[c] *14*	1535.664	4^+	E2		0.183	α(K)=0.1259 *18*; α(L)=0.0438 *7*; α(M)=0.01024 *15* α(N)=0.00232 *4*; α(O)=0.000295 *5*; α(P)=6.12×10^{-6} *9*
		266.211	6.0 *6*	1485.671	5^-				
		427.433 *5*	35 *3*	1324.465	6^+	M1+E2	1.3 *3*	0.031 *3*	α(K)=0.025 *3*; α(L)=0.00434 *22*; α(M)=0.00097 *5* α(N)=0.000222 *11*; α(O)=3.13×10^{-5} *18*; α(P)=1.49×10^{-6} *17*
		569.129 *4*	100 *5*	1182.763	5^+	E2(+M1)	>3.6	0.0113 *4*	α(K)=0.0092 *4*; α(L)=0.00161 *5*; α(M)=0.000360 *9* α(N)=8.27×10^{-5} *21*; α(O)=1.16×10^{-5} *4*; α(P)=5.24×10^{-7} *23*
		691.0 *1*	75 *5*	1060.991	4^+				E_γ: from 2006Ap01 (α,2nγ). 2006Ap01, in (n,γ), do not report this γ. This γ is also not reported in (^{7}Li,p4nγ). I_γ: from 2006Ap01, (α,2nγ). From (^{162}Dy,^{162}Dy$'\gamma$), 2001Wu05 report Iγ(691)/Iγ(569)=63 *27*.
1754.82	$(7)^-$	1206.3 *2*	100 *9*	548.520	6^+	E1		9.13×10^{-4}	α(K)=0.000759 *11*; α(L)=0.0001000 *14*;

$^{162}_{66}Dy_{96}$-29

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J_i^π	E_γ [†‡#]	I_γ	E_f	J_f^π	Mult. [&]	δ [&b]	α [a]	Comments
									α(M)=2.17×10^{-5} *3* α(N)=5.00×10^{-6} *7*; α(O)=7.32×10^{-7} *11*; α(P)=4.25×10^{-8} *6*; α(IPF)=2.61×10^{-5} *4* E_γ: from (^{7}Li,p4nγ). Mult.: From (α,2nγ), α(K)exp≤0.0007, which gives mult=E1.
1766.608	3$^-$	230.943 *1*	4.8 *2*	1535.664	4$^+$	[E1]		0.0334	α(K)=0.0283 *4*; α(L)=0.00406 *6*; α(M)=0.000886 *13* α(N)=0.000203 *3*; α(O)=2.87×10^{-5} *4*; α(P)=1.452×10^{-6} *21*
		280.937 *2*	4.6 *1*	1485.671	5$^-$	E2		0.0790	α(K)=0.0584 *9*; α(L)=0.01597 *23*; α(M)=0.00369 *6* α(N)=0.000837 *12*; α(O)=0.0001094 *16*; α(P)=3.00×10^{-6} *5*
		408.678 *5*	2.1 *1*	1357.928	3$^-$	M1(+E2)	<1.0	0.044 *6*	α(K)=0.037 *6*; α(L)=0.0056 *5*; α(M)=0.00124 *9* α(N)=0.000285 *21*; α(O)=4.1×10^{-5} *4*; α(P)=2.2×10^{-6} *4*
		469.602 *3*	8.9 *6*	1297.006	4$^-$	M1+E2	0.58 *3*	0.0306 *6*	α(K)=0.0257 *5*; α(L)=0.00384 *6*; α(M)=0.000845 *14* α(N)=0.000195 *3*; α(O)=2.83×10^{-5} *5*; α(P)=1.55×10^{-6} *3*
		556.519 *2*	56 *4*	1210.089	3$^-$	M1+E2	0.52 *19*	0.0203 *14*	α(K)=0.0171 *13*; α(L)=0.00249 *13*; α(M)=0.00055 *3* α(N)=0.000126 *7*; α(O)=1.84×10^{-5} *11*; α(P)=1.03×10^{-6} *8*
		618.376 *3*	29 *1*	1148.232	2$^-$	M1+E2	2.06 *13*	0.01050 *23*	α(K)=0.00870 *20*; α(L)=0.00141 *3*; α(M)=0.000312 *6* α(N)=7.18×10^{-5} *14*; α(O)=1.020×10^{-5} *20*; α(P)=5.06×10^{-7} *13*
		705.614 *7*	44 *4*	1060.991	4$^+$	E1		0.00246	α(K)=0.00210 *3*; α(L)=0.000283 *4*; α(M)=6.16×10^{-5} *9* α(N)=1.419×10^{-5} *20*; α(O)=2.06×10^{-6} *3*; α(P)=1.162×10^{-7} *17*
		803.677 *8*	46 *2*	962.940	3$^+$	(E1)		0.00190	α(K)=0.001620 *23*; α(L)=0.000217 *3*; α(M)=4.72×10^{-5} *7* α(N)=1.087×10^{-5} *16*; α(O)=1.584×10^{-6} *23*; α(P)=9.00×10^{-8} *13*
		878.444 *6*	100 *3*	888.161	2$^+$	(E1)		1.60×10^{-3}	α(K)=0.001363 *19*; α(L)=0.000182 *3*; α(M)=3.95×10^{-5} *6* α(N)=9.11×10^{-6} *13*; α(O)=1.328×10^{-6} *19*; α(P)=7.59×10^{-8} *11*
1767.37	6$^+$	846.2 *2*	47 *7*	921.28	8$^+$	E2		0.00434	α(K)=0.00362 *5*; α(L)=0.000561 *8*; α(M)=0.0001239 *18* α(N)=2.85×10^{-5} *4*; α(O)=4.07×10^{-6} *6*; α(P)=2.08×10^{-7} *3*
		1218.6 *3*	100 *13*	548.520	6$^+$	E2+M1		0.0027 *7*	α(K)=0.0023 *6*; α(L)=0.00032 *7*; α(M)=6.9×10^{-5} *16* α(N)=1.6×10^{-5} *4*; α(O)=2.3×10^{-6} *6*; α(P)=1.34×10^{-7} *35*; α(IPF)=8.0×10^{-6} *6*
1782.68	2$^+$	819.76 *13*	74 *19*	962.940	3$^+$				
		894.39 *22*	64 *9*	888.161	2$^+$				
		1516.6 *3*	26 *7*	265.664	4$^+$				
		1702.08 *19*	100 *9*	80.661	2$^+$				
		1782.8 [c] *2*	111 [c] *5*	0.0	0$^+$				I_γ: from ^{162}Tb β^- decay. From ^{162}Ho ε decay (15.0 min), Iγ=87 *13*. From (n,n′γ), Iγ=113 *11*.
1807.56	8$^-$	124.1 *1*	81 *8*	1683.35	7$^-$				
		231.6 *1*	100 *11*	1575.623	6$^-$				

Adopted Levels, Gammas (continued)

γ(^{162}Dy) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†‡#]	I$_\gamma$	E$_f$	J$^\pi_f$	Mult.[&]	δ[&b]	α[a]	Comments
1807.56	8$^-$	277.3 *2*	19 *3*	1530.127	6$^-$				E$_\gamma$: from (α,2nγ). From (^{7}Li,p4nγ), Eγ=277.
		317.7 *1*	28 *3*	1490.39	7$^+$				
1826.753	4$^-$	192.344 *5*	2.1 *2*	1634.415	5$^+$	[E1]		0.0539	α(K)=0.0455 *7*; α(L)=0.00661 *10*; α(M)=0.001445 *21* α(N)=0.000330 *5*; α(O)=4.64×10^{-5} *7*; α(P)=2.29×10^{-6} *4*
		251.139 *24*	1.7 *4*	1575.623	6$^-$	[E2]		0.1124	α(K)=0.0809 *12*; α(L)=0.0244 *4*; α(M)=0.00566 *8* α(N)=0.001282 *18*; α(O)=0.0001657 *24*; α(P)=4.07×10^{-6} *6*
		291.07 *4*	0.32 *9*	1535.664	4$^+$	[E1]		0.0185	α(K)=0.01571 *22*; α(L)=0.00222 *4*; α(M)=0.000486 *7* α(N)=0.0001114 *16*; α(O)=1.588×10^{-5} *23*; α(P)=8.26×10^{-7} *12*
		308.321 *6*	1.5 *2*	1518.426	5$^-$	[M1,E2]		0.082 *23*	α(K)=0.067 *22*; α(L)=0.0121 *8*; α(M)=0.00270 *10* α(N)=0.00062 *3*; α(O)=8.7×10^{-5} *9*; α(P)=3.9×10^{-6} *16*
		341.081 *3*	2.5 *3*	1485.671	5$^-$	E2(+M1)	>1.5	0.049 *6*	α(K)=0.039 *6*; α(L)=0.0082 *3*; α(M)=0.00187 *6* α(N)=0.000426 *14*; α(O)=5.8×10^{-5} *3*; α(P)=2.2×10^{-6} *4*
		436.241 *4*	4.8 *2*	1390.513	5$^-$	M1		0.0422	α(K)=0.0357 *5*; α(L)=0.00508 *8*; α(M)=0.001112 *16* α(N)=0.000257 *4*; α(O)=3.78×10^{-5} *6*; α(P)=2.19×10^{-6} *3*
		529.749 *4*	30.6 *8*	1297.006	4$^-$	M1+E2	0.47 *11*	0.0234 *10*	α(K)=0.0197 *9*; α(L)=0.00286 *9*; α(M)=0.000629 *19* α(N)=0.000145 *5*; α(O)=2.12×10^{-5} *7*; α(P)=1.19×10^{-6} *6*
		643.989 *2*	41 *2*	1182.763	5$^+$	E1		0.00297	α(K)=0.00254 *4*; α(L)=0.000344 *5*; α(M)=7.47×10^{-5} *11* α(N)=1.721×10^{-5} *24*; α(O)=2.50×10^{-6} *4*; α(P)=1.398×10^{-7} *20*
		678.52 *3*	5.2 *5*	1148.232	2$^-$	[E2]		0.00714	α(K)=0.00588 *9*; α(L)=0.000976 *14*; α(M)=0.000217 *3* α(N)=4.99×10^{-5} *7*; α(O)=7.04×10^{-6} *10*; α(P)=3.36×10^{-7} *5*
		765.756 *9*	26 *2*	1060.991	4$^+$	[E1]		0.00209	α(K)=0.001782 *25*; α(L)=0.000239 *4*; α(M)=5.20×10^{-5} *8* α(N)=1.199×10^{-5} *17*; α(O)=1.745×10^{-6} *25*; α(P)=9.88×10^{-8} *14*
		863.808 *5*	100 *2*	962.940	3$^+$	[E1]		1.65×10^{-3}	α(K)=0.001408 *20*; α(L)=0.000188 *3*; α(M)=4.08×10^{-5} *6* α(N)=9.41×10^{-6} *14*; α(O)=1.373×10^{-6} *20*; α(P)=7.83×10^{-8} *11*
1840.486	3$^+$	269.575 *10*	1.2 *2*	1570.912	3$^-$	[E1]		0.0225	α(K)=0.0190 *3*; α(L)=0.00271 *4*; α(M)=0.000591 *9* α(N)=0.0001356 *19*; α(O)=1.93×10^{-5} *3*; α(P)=9.94×10^{-7} *14*
		387.017 *21*	1.6 *5*	1453.468	2$^+$	[M1,E2]		0.044 *14*	α(K)=0.036 *13*; α(L)=0.0061 *9*; α(M)=0.00135 *18* α(N)=0.00031 *5*; α(O)=4.4×10^{-5} *8*; α(P)=2.14×10^{-6} *85*
		543.477 *4*	24.2 *14*	1297.006	4$^-$	[E1]		0.00427	α(K)=0.00364 *5*; α(L)=0.000498 *7*; α(M)=0.0001083 *16* α(N)=2.49×10^{-5} *4*; α(O)=3.61×10^{-6} *5*; α(P)=1.99×10^{-7} *3*
		630.398 *4*	40 *4*	1210.089	3$^-$	E1		0.00311	α(K)=0.00265 *4*; α(L)=0.000360 *5*; α(M)=7.82×10^{-5} *11* α(N)=1.80×10^{-5} *3*; α(O)=2.61×10^{-6} *4*; α(P)=1.461×10^{-7} *21*
		779.494 *6*	70 *5*	1060.991	4$^+$	M1(+E2)	<0.55	0.0092 *6*	α(K)=0.0078 *5*; α(L)=0.00110 *6*; α(M)=0.000240 *13* α(N)=5.6×10^{-5} *3*; α(O)=8.2×10^{-6} *5*; α(P)=4.7×10^{-7} *3*
		877.537 *14*	52.6 *18*	962.940	3$^+$	M1		0.00729	α(K)=0.00619 *9*; α(L)=0.000860 *12*; α(M)=0.000188 *3* α(N)=4.34×10^{-5} *6*; α(O)=6.39×10^{-6} *9*; α(P)=3.74×10^{-7} *6*

$^{162}_{66}Dy_{96}$-31

$\gamma(^{162}$Dy) (continued)

E_i(level)	J_i^π	E_γ [†‡#]	I_γ	E_f	J_f^π	Mult. [&]	δ [&b]	α [a]	Comments
1840.486	3^+	952.42 9	12 4	888.161	2^+	[M1,E2]		0.0047 13	α(K)=0.0040 12; α(L)=0.00056 14; α(M)=0.00012 3 α(N)=2.9×10^{-5} 7; α(O)=4.2×10^{-6} 11; α(P)=2.35×10^{-7} 72
		1574.66 9	86 11	265.664	4^+	(E2)		1.34×10^{-3}	α(K)=0.001056 15; α(L)=0.0001462 21; α(M)=3.19×10^{-5} 5 α(N)=7.36×10^{-6} 11; α(O)=1.075×10^{-6} 15; α(P)=6.10×10^{-8} 9; α(IPF)=9.94×10^{-5} 14
		1759.8 5	100 26	80.661	2^+	[M1,E2]		0.00140 22	α(K)=0.00103 17; α(L)=0.000140 23; α(M)=3.0×10^{-5} 5 α(N)=7.0×10^{-6} 12; α(O)=1.03×10^{-6} 17; α(P)=6.0×10^{-8} 11; α(IPF)=0.000191 16
1845.53	8^-	315.4 1	57 4	1530.127	6^-				
		355.0 1	100 4	1490.39	7^+				
		925		921.28	8^+				E_γ: reported in ^{161}Dy(^{61}Ni,^{60}Niγ) only.
1851.811	4^-	493.885 2	53 2	1357.928	3^-	M1(+E2)	<0.58	0.0288 20	α(K)=0.0243 18; α(L)=0.00352 17; α(M)=0.00077 4 α(N)=0.000178 9; α(O)=2.60×10^{-5} 14; α(P)=1.48×10^{-6} 12
		554.802 3	82 5	1297.006	4^-	M1(+E2)	<0.20	0.0226	α(K)=0.0191 4; α(L)=0.00271 5; α(M)=0.000592 10 α(N)=0.0001370 22; α(O)=2.01×10^{-5} 4; α(P)=1.166×10^{-6} 21
		641.715 4	35 4	1210.089	3^-	M1+E2	1.18 16	0.0113 6	α(K)=0.0095 5; α(L)=0.00145 6; α(M)=0.000319 13 α(N)=7.3×10^{-5} 3; α(O)=1.06×10^{-5} 5; α(P)=5.6×10^{-7} 4
		669.039 12	53 4	1182.763	5^+	E1		0.00275	α(K)=0.00234 4; α(L)=0.000317 5; α(M)=6.89×10^{-5} 10 α(N)=1.587×10^{-5} 23; α(O)=2.31×10^{-6} 4; α(P)=1.294×10^{-7} 19
		703.582 13	14.6 7	1148.232	2^-	E2		0.00656	α(K)=0.00542 8; α(L)=0.000888 13; α(M)=0.000197 3 α(N)=4.53×10^{-5} 7; α(O)=6.41×10^{-6} 9; α(P)=3.10×10^{-7} 5
		1585.83 25	100 30	265.664	4^+	E1		8.17×10^{-4}	α(K)=0.000474 7; α(L)=6.18×10^{-5} 9; α(M)=1.339×10^{-5} 19 α(N)=3.09×10^{-6} 5; α(O)=4.54×10^{-7} 7; α(P)=2.66×10^{-8} 4; α(IPF)=0.000264 4
1862.677	4^-	228.263 1	10.4 2	1634.415	5^+	E1		0.0345	α(K)=0.0291 4; α(L)=0.00418 6; α(M)=0.000914 13 α(N)=0.000209 3; α(O)=2.96×10^{-5} 5; α(P)=1.495×10^{-6} 21
		327.012 1	100 15	1535.664	4^+	E1		0.01390	α(K)=0.01178 17; α(L)=0.001658 24; α(M)=0.000362 5 α(N)=8.30×10^{-5} 12; α(O)=1.187×10^{-5} 17; α(P)=6.26×10^{-7} 9
		377.015 5	1.58 7	1485.671	5^-	[M1,E2]		0.047 15	α(K)=0.039 14; α(L)=0.0065 10; α(M)=0.00146 18 α(N)=0.00034 5; α(O)=4.7×10^{-5} 8; α(P)=2.29×10^{-6} 92
		652.581 3	21.0 6	1210.089	3^-	E2		0.00782	α(K)=0.00643 9; α(L)=0.001082 16; α(M)=0.000241 4 α(N)=5.53×10^{-5} 8; α(O)=7.79×10^{-6} 11; α(P)=3.67×10^{-7} 6

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J_i^π	E_γ [†‡#]	I_γ	E_f	J_f^π	Mult. [&]	α [a]	Comments
1862.677	4^-	714.444 *5*	50 *7*	1148.232	2^-	E2	0.00633	α(K)=0.00524 *8*; α(L)=0.000854 *12*; α(M)=0.000190 *3* α(N)=4.36×10^{-5} *6*; α(O)=6.17×10^{-6} *9*; α(P)=3.00×10^{-7} *5*
1863.83	2^-	588.8 *5*	10 *4*	1275.772	1^-			
		652.1 *3*	15 *3*	1210.089	3^-			
		900.80 *19*	35 *4*	962.940	3^+			
		975.64 *6*	100 *6*	888.161	2^+			
		1782.8[c] *2*	48[c] *5*	80.661	2^+			
1878.05	9^+	387.5 *1*	75 *2*	1490.39	7^+	E2	0.0303	α(K)=0.0237 *4*; α(L)=0.00515 *8*; α(M)=0.001171 *17* α(N)=0.000267 *4*; α(O)=3.60×10^{-5} *5*; α(P)=1.288×10^{-6} *18*
		502.9 *2*	12	1375.08	10^+	E2(+M1)	0.0221 *72*	α(K)=0.0184 *64*; α(L)=0.0029 *7*; α(M)=0.00064 *13* α(N)=0.00015 *3*; α(O)=2.1×10^{-5} *5*; α(P)=1.09×10^{-6} *43* From (α,2nγ). γ not reported in the heavy-ion-induced reactions.
		956.9 *1*	100 *5*	921.28	8^+	E2(+M1)	0.0046 *13*	α(K)=0.0039 *12*; α(L)=0.00056 *14*; α(M)=0.00012 *3* α(N)=2.8×10^{-5} *7*; α(O)=4.1×10^{-6} *11*; α(P)=2.32×10^{-7} *71* Mult.: from (α,2nγ), the 956+957 peak has α(K)exp=0.0053 (1982Fi15), which gives M1.
1886.82	4^+	671.55[c] *10*	64[c] *5*	1210.089	3^-			E_γ: poor energy fit, level-energy difference=676.8 keV. Note that γ is doubly placed. γ is not included in the least-squares fit to obtain the level energies.
		923.8 *3*	10 *2*	962.940	3^+			
		1806.15 *9*	100 *6*	80.661	2^+	E2	1.16×10^{-3}	α(K)=0.000819 *12*; α(L)=0.0001117 *16*; α(M)=2.43×10^{-5} *4* α(N)=5.62×10^{-6} *8*; α(O)=8.23×10^{-7} *12*; α(P)=4.73×10^{-8} *7*; α(IPF)=0.000196 *3*
1887.67	7^+	135.9 *1*	81 *6*	1751.881	6^+	E2+M1	0.95 *6*	α(K)=0.67 *18*; α(L)=0.216 *93*; α(M)=0.050 *23* α(N)=0.0114 *51*; α(O)=0.00147 *55*; α(P)=3.7×10^{-5} *16* E_γ: from (α,2nγ). γ not reported in (^{7}Li,p4nγ). δ: from $\gamma(\theta)$ in (α,2nγ), smaller δ=+0.05 *5* (1982Fi15).
		253.2 *1*	100 *6*	1634.415	5^+	E2	0.1095	α(K)=0.0790 *12*; α(L)=0.0236 *4*; α(M)=0.00548 *8* α(N)=0.001242 *18*; α(O)=0.0001607 *23*; α(P)=3.98×10^{-6} *6*
		397.4 *3*	50 *6*	1490.39	7^+	E2	0.0282	α(K)=0.0221 *4*; α(L)=0.00473 *7*; α(M)=0.001076 *16* α(N)=0.000245 *4*; α(O)=3.32×10^{-5} *5*; α(P)=1.207×10^{-6} *17*
		563.2 *1*	31 *6*	1324.465	6^+	E2	0.01119	α(K)=0.00910 *13*; α(L)=0.001625 *23*; α(M)=0.000364 *5* α(N)=8.34×10^{-5} *12*; α(O)=1.161×10^{-5} *17*; α(P)=5.14×10^{-7} *8*
		704.9 *1*	25 *6*	1182.763	5^+	E2	0.00653	α(K)=0.00540 *8*; α(L)=0.000884 *13*; α(M)=0.000196 *3* α(N)=4.51×10^{-5} *7*; α(O)=6.38×10^{-6} *9*; α(P)=3.09×10^{-7} *5*
1895.42	2^+	258.17 *5*	123 *16*	1637.196	1^-			
		747.24[c] *13*	42[c] *4*	1148.232	2^-			
		834.2 *4*	12 *3*	1060.991	4^+			
		1007.0 *4*	22 *3*	888.161	2^+			
		1814.92[c] *9*	100[c] *7*	80.661	2^+			I_γ: most of the intensity must Be associated with this placement.

$^{162}_{66}Dy_{96}$-33

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ [†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1901.10	12^+	526.2 *1*	100	1375.08	10^+	E2		0.01328	B(E2)(W.u.)=326 *+36−30* α(K)=0.01075 *15*; α(L)=0.00198 *3*; α(M)=0.000444 *7* α(N)=0.0001017 *15*; α(O)=1.408×10^{-5} *20*; α(P)=6.04×10^{-7} *9*
1910.430	3^-	552.486 *21*	1.0 *1*	1357.928	3^-	[M1,E2]		0.0174 *57*	α(K)=0.0145 *50*; α(L)=0.0022 *6*; α(M)=0.00049 *11* α(N)=0.00011 *3*; α(O)=1.64×10^{-5} *42*; α(P)=8.6×10^{-7} *33*
		849.435[c] *7*	80[c] *2*	1060.991	4^+	E1		1.70×10^{-3}	α(K)=0.001454 *21*; α(L)=0.000194 *3*; α(M)=4.22×10^{-5} *6* α(N)=9.73×10^{-6} *14*; α(O)=1.419×10^{-6} *20*; α(P)=8.09×10^{-8} *12*
		947.484 *8*	100 *3*	962.940	3^+	E1		1.38×10^{-3}	α(K)=0.001181 *17*; α(L)=0.0001570 *22*; α(M)=3.41×10^{-5} *5* α(N)=7.86×10^{-6} *11*; α(O)=1.147×10^{-6} *16*; α(P)=6.58×10^{-8} *10*
		1022.278 *11*	93 *6*	888.161	2^+	E1		1.20×10^{-3}	α(K)=0.001025 *15*; α(L)=0.0001358 *19*; α(M)=2.95×10^{-5} *5* α(N)=6.80×10^{-6} *10*; α(O)=9.93×10^{-7} *14*; α(P)=5.72×10^{-8} *8*
1939.65	9^-	564.6 *2*	16 *4*	1375.08	10^+				
		1018.3 *1*	100 *12*	921.28	8^+	E1		1.21×10^{-3}	α(K)=0.001032 *15*; α(L)=0.0001368 *20*; α(M)=2.97×10^{-5} *5* α(N)=6.85×10^{-6} *10*; α(O)=1.001×10^{-6} *14*; α(P)=5.76×10^{-8} *8* Mult.: from (α,2nγ), α(K)exp=0.0004 *1*, which gives mult=E1.
1951.391	$3^+,4^+$	497.926 *12*	3.7 *6*	1453.468	2^+	[E2]		0.01532	α(K)=0.01233 *18*; α(L)=0.00233 *4*; α(M)=0.000524 *8* α(N)=0.0001200 *17*; α(O)=1.654×10^{-5} *24*; α(P)=6.90×10^{-7} *10*
		654.381 *5*	41 *2*	1297.006	4^-	E1		0.00288	α(K)=0.00245 *4*; α(L)=0.000332 *5*; α(M)=7.22×10^{-5} *11* α(N)=1.663×10^{-5} *24*; α(O)=2.41×10^{-6} *4*; α(P)=1.353×10^{-7} *19*
		741.313 *13*	29.6 *15*	1210.089	3^-	[E1]		0.00223	α(K)=0.00190 *3*; α(L)=0.000256 *4*; α(M)=5.56×10^{-5} *8* α(N)=1.281×10^{-5} *18*; α(O)=1.86×10^{-6} *3*; α(P)=1.054×10^{-7} *15*
		988.44 *4*	37 *4*	962.940	3^+	M1(+E2)	<0.87	0.0050 *5*	α(K)=0.0042 *5*; α(L)=0.00059 *6*; α(M)=0.000128 *12* α(N)=3.0×10^{-5} *3*; α(O)=4.4×10^{-6} *5*; α(P)=2.5×10^{-7} *3*
		1685.79 *14*	100 *20*	265.664	4^+	(E2)		1.24×10^{-3}	α(K)=0.000930 *13*; α(L)=0.0001278 *18*; α(M)=2.79×10^{-5} *4* α(N)=6.43×10^{-6} *9*; α(O)=9.40×10^{-7} *14*; α(P)=5.37×10^{-8} *8*; α(IPF)=0.0001433 *20*

$^{162}_{66}Dy_{96}$-34

Adopted Levels, Gammas (continued)

γ(^{162}Dy) (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	δ[&b]	α[a]	Comments
1959.36	9^-	322.2[e]		1637.92	7^-				γ not reported in (α,2nγ).
		583.9 *1*	25 *3*	1375.08	10^+				E_γ,I_γ: from (α,2nγ).
		1038.0 *1*	100 *13*	921.28	8^+	E1		1.16×10^{-3}	α(K)=0.000996 *14*; α(L)=0.0001320 *19*; α(M)=2.86×10^{-5} *4* α(N)=6.60×10^{-6} *10*; α(O)=9.65×10^{-7} *14*; α(P)=5.56×10^{-8} *8* E_γ: from (α,2nγ). From 2002Ju08, (^{7}Li,p4nγ), Eγ=1037.8 *2*. Mult.: from (α,2nγ), α(K)exp$\leq$0.0016, which gives mult=E1. Additional information 24.
1963.598	5^-	211.711 *3*	27 *9*	1751.881	6^+	(E1)		0.0419	α(K)=0.0354 *5*; α(L)=0.00511 *8*; α(M)=0.001117 *16* α(N)=0.000256 *4*; α(O)=3.61×10^{-5} *5*; α(P)=1.80×10^{-6} *3*
		329.184 *1*	141 *9*	1634.415	5^+	E1		0.01368	α(K)=0.01160 *17*; α(L)=0.001630 *23*; α(M)=0.000356 *5* α(N)=8.17×10^{-5} *12*; α(O)=1.168×10^{-5} *17*; α(P)=6.16×10^{-7} *9*
		387.976 *12*	4.5 *5*	1575.623	6^-	[M1,E2]		0.044 *14*	α(K)=0.036 *13*; α(L)=0.0060 *9*; α(M)=0.00134 *18* α(N)=0.00031 *5*; α(O)=4.4×10^{-5} *8*; α(P)=2.13×10^{-6} *85*
		427.932 *2*	86.8 *14*	1535.664	4^+	E1		0.00732	α(K)=0.00622 *9*; α(L)=0.000861 *12*; α(M)=0.000188 *3* α(N)=4.32×10^{-5} *6*; α(O)=6.21×10^{-6} *9*; α(P)=3.36×10^{-7} *5*
		639.144 *11*	20 *3*	1324.465	6^+	[E1]		0.00302	α(K)=0.00258 *4*; α(L)=0.000349 *5*; α(M)=7.59×10^{-5} *11* α(N)=1.749×10^{-5} *25*; α(O)=2.54×10^{-6} *4*; α(P)=1.420×10^{-7} *20*
		666.594 *7*	57.3 *23*	1297.006	4^-	E2(+M1)	>2.3	0.0080 *6*	α(K)=0.0066 *5*; α(L)=0.00108 *6*; α(M)=0.000239 *12* α(N)=5.5×10^{-5} *3*; α(O)=7.8×10^{-6} *5*; α(P)=3.8×10^{-7} *4*
		753.500 *11*	82 *9*	1210.089	3^-	E2		0.00561	α(K)=0.00465 *7*; α(L)=0.000746 *11*; α(M)=0.0001653 *24* α(N)=3.80×10^{-5} *6*; α(O)=5.40×10^{-6} *8*; α(P)=2.67×10^{-7} *4*
		780.77 *4*	27 *5*	1182.763	5^+	[E1]		0.00201	α(K)=0.001715 *24*; α(L)=0.000230 *4*; α(M)=5.00×10^{-5} *7* α(N)=1.153×10^{-5} *17*; α(O)=1.678×10^{-6} *24*; α(P)=9.52×10^{-8} *14*
		902.610 *20*	68 *5*	1060.991	4^+	[E1]		1.51×10^{-3}	α(K)=0.001294 *19*; α(L)=0.0001725 *25*; α(M)=3.74×10^{-5} *6* α(N)=8.64×10^{-6} *12*; α(O)=1.260×10^{-6} *18*; α(P)=7.21×10^{-8} *10*
		1415.30 *18*	100 *27*	548.520	6^+	[E1]		8.12×10^{-4}	α(K)=0.000574 *8*; α(L)=7.52×10^{-5} *11*; α(M)=1.629×10^{-5} *23* α(N)=3.76×10^{-6} *6*; α(O)=5.51×10^{-7} *8*; α(P)=3.22×10^{-8} *5*; α(IPF)=0.0001415 *20*
1974.10	4^-	678.05[c] *13*	82[c] *8*	1297.006	4^-				
		911.86 *22*	61 *8*	1060.991	4^+				
		1010.09 *19*	100 *10*	962.940	3^+				
1982.46	2^+	1716.4 *5*	16 *5*	265.664	4^+				I_γ: from (n,n′γ).
		1902.1 *2*	100 *7*	80.661	2^+				I_γ: from (n,n′γ). From β^- decay, Iγ(1902)/Iγ(1982)=1.03. From (n,γ), this ratio is 0.17, but Iγ(1902γ) is listed there as 2.7 *30*, so there may Be a misprint.
		1982.2 *2*	99 *7*	0.0	0^+				I_γ: from (n,n′γ).
1985.88	8^+	1064.6 *2*	100	921.28	8^+	M1		0.00457	B(M1)(W.u.)=0.0058 α(K)=0.00388 *6*; α(L)=0.000536 *8*; α(M)=0.0001169 *17* α(N)=2.70×10^{-5} *4*; α(O)=3.98×10^{-6} *6*; α(P)=2.34×10^{-7} *4* B(M1)(W.u.) is that reported by 2001Wu05, in

$^{162}_{66}$Dy$_{96}$-35

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
								(^{162}Dy,^{162}Dy$'\gamma$). Mult.: from (α,2nγ), α(K)exp=0.0050 9, which gives mult=M1. 2001Wu05 state that the M1 component dominates the ΔJ=0 transitions connecting the g.s. and S bands. A small E2 component, of course, is not ruled out.
1999.33	2^+	790.6 2	57 11	1210.089	3^-			
		1108.6[c] 3	62[c] 12	888.161	2^+			
		1918.4 2	100 9	80.661	2^+			
		1999.5[d] 5	23[d] 8	0.0	0^+			
2009.796		339.82	1.6	1670.505	8^+			
		372.597 3	27.0 5	1637.196	1^-	E2	0.0339	α(K)=0.0264 4; α(L)=0.00587 9; α(M)=0.001338 19 α(N)=0.000305 5; α(O)=4.10×10^{-5} 6; α(P)=1.424×10^{-6} 20
		477.50 10	33 3	1530.127	6^-			
		686.15[c] 6	4.6[c] 13	1324.465	6^+			
		713.0 6	100 5	1297.006	4^-			
		798.52	5.9	1210.089	3^-			
		826.77	6.8	1182.763	5^+			
		1462.69[c] 8	65[c] 11	548.520	6^+			
2040.97	8^+	153.4 1	100 30	1887.67	7^+	E2+M1	0.65 7	α(K)=0.47 13; α(L)=0.135 48; α(M)=0.031 12 α(N)=0.0071 27; α(O)=9.3×10^{-4} 28; α(P)=2.6×10^{-5} 11
		289.0 1	85 15	1751.881	6^+	E2	0.0724	α(K)=0.0538 8; α(L)=0.01438 21; α(M)=0.00332 5 α(N)=0.000753 11; α(O)=9.87×10^{-5} 14; α(P)=2.78×10^{-6} 4
		550.6 2	15	1490.39	7^+			
2053.541	5^-	302.880[c] 20	4.0[c] 13	1751.881	6^+			
		536.8 3	21 19	1518.426	5^-			
		663.41	4.0	1390.513	5^-			
		728.384[c] 15	89[c] 9	1324.465	6^+			
		994.0 4	75 13	1060.991	4^+			
		1505.2 7	10.4 6	548.520	6^+			
		1786.9 3	100 11	265.664	4^+			
2071.95	(4)	243.95	3.3	1826.753	4^-			
		747.7 1	124 15	1324.465	6^+			
		1108.85 18	64 9	962.940	3^+	M1	0.00414	α(K)=0.00352 5; α(L)=0.000485 7; α(M)=0.0001059 15 α(N)=2.45×10^{-5} 4; α(O)=3.61×10^{-6} 5; α(P)=2.12×10^{-7} 3; α(IPF)=4.52×10^{-7} 7
		1523.3 10	10 8	548.520	6^+			
		1989.9 3	100 12	80.661	2^+			
2080.03	(2,3)	216.193[c] 13	15.5[c] 5	1863.83	2^-			
		240.1 2	455 24	1840.486	3^+			
		1114.3 3	100 21	962.940	3^+			

$^{162}_{66}Dy_{96}$-36

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
2080.03	(2,3)	1814.62[c] *7*	389[c] *32*	265.664	4^+	E2	1.15×10^{-3}	α(K)=0.000812 *12*; α(L)=0.0001107 *16*; α(M)=2.41×10^{-5} *4* α(N)=5.57×10^{-6} *8*; α(O)=8.15×10^{-7} *12*; α(P)=4.69×10^{-8} *7*; α(IPF)=0.000199 *3* Most of the intensity of this γ is to be associated with the other placement.
		1999.5[d] *5*	342[d] *18*	80.661	2^+			
		2079.8 *5*	55 *11*	0.0	0^+			
2087.49	10^+	417.0 *1*	100 *3*	1670.505	8^+			
		712.5 *1*	57 *3*	1375.08	10^+			
		1166.3 *2*	35 *3*	921.28	8^+			
2100.66	9^-	725.5 *2*	18 *5*	1375.08	10^+			
		1179.6 *2*	100 *23*	921.28	8^+	E1	9.39×10^{-4}	α(K)=0.000790 *11*; α(L)=0.0001041 *15*; α(M)=2.26×10^{-5} *4* α(N)=5.21×10^{-6} *8*; α(O)=7.62×10^{-7} *11*; α(P)=4.42×10^{-8} *7*; α(IPF)=1.612×10^{-5} *24* Mult.: from (α,2nγ), α(K)exp=0.0010 *3*, which gives mult=E1.
2103.48	(2^+)	358.74	0.5	1745.716	1^+			
		468.15 *31*	16 *4*	1634.415	5^+			
		529.11 *7*	155 *17*	1574.293	4^+			
		1142.3 *3*	100 *13*	962.940	3^+			
		2024.9 *11*	43 *20*	80.661	2^+			
		2104.5 *7*	17 *12*	0.0	0^+			
2110.70	10^-	151.6 *1*	32 *3*	1959.36	9^-			
		171.0 *1*	21 *3*	1939.65	9^-			I_γ: note: Iγ(171)/Iγ(303)=1.54 in (α,2nγ).
		303.2 *1*	100 *3*	1807.56	8^-			
2120.717	(4^-)	120.06	7.3 *13*	2000.7				
		486.322[c] *8*	3.0[c] *5*	1634.415	5^+			
		584.05 *6*	100 *11*	1535.664	4^+			
		601.41	0.93	1518.426	5^-			
		1156.2 *2*	14 *6*	962.940	3^+			
2125.212	0^+	399.3[c] *4*	6[c] *3*	1728.318	2^+			
		491.03[c] *10*	45[c] *4*	1634.415	5^+			
		849.435[c] *7*	100[c] *10*	1275.772	1^-			
		2046.6 *3*	59 *11*	80.661	2^+			
2128.6	1^-	980.4 *7*	9 *3*	1148.232	2^-			
		2047.9 *4*	100 *3*	80.661	2^+			
2129.497	(2^+)	276.92	0.30	1851.811	4^-			
		302.880[c] *20*	3.1[c] *10*	1826.753	4^-			
		399.3[c] *4*	6[c] *3*	1728.318	2^+			
		440.9 *3*	9 *3*	1691.340	2^-			
		458.991[c] *2*	24[c] *3*	1670.505	8^+			
		491.03[c] *10*	48[c] *4*	1637.92	7^-			

$^{162}_{66}Dy_{96}$-37

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
2129.497	(2^+)	769.0 1	100 4	1357.928	3^-			
		2048.1 3	19 4	80.661	2^+			
		2129.3 20	15 4	0.0	0^+			
2148.681	(2)	321.928[c] 2	[c]	1826.753	4^-			I_γ: most of the intensity of this peak is associated with the other placement. See the comment in the (n,γ) data set.
		578.52	12	1570.912	3^-			
		1088.56	88	1060.991	4^+			
		1186.8 6	1.2×10^2 5	962.940	3^+			
		1261.6 4	100 21	888.161	2^+			
2163.3	1,2,3	1014.9 6	100 11	1148.232	2^-			
		2082.8 6	54 4	80.661	2^+			
2181.0	4^+	1218.0	113 24	962.940	3^+			
		1292.8	100	888.161	2^+			B(E2)(W.u.)=2.8 8 B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
2187.9	8^+	146.4 1	1.6 2	2040.97	8^+	[M1]	0.810	α(K)=0.682 10; α(L)=0.0999 15; α(M)=0.0219 3 α(N)=0.00507 8; α(O)=0.000743 11; α(P)=4.24×10^{-5} 6 B(M1)(W.u.)=7.3×10^{-9} 9
		228.6 1	1.5 3	1959.36	9^-	[E1]	0.0343	α(K)=0.0290 4; α(L)=0.00417 6; α(M)=0.000911 13 α(N)=0.000209 3; α(O)=2.95×10^{-5} 5; α(P)=1.489×10^{-6} 21 B(E1)(W.u.)=1.86×10^{-11} 37
		248.0 1	0.4 1	1939.65	9^-	[E1]	0.0278	α(K)=0.0235 4; α(L)=0.00336 5; α(M)=0.000735 11 α(N)=0.0001684 24; α(O)=2.39×10^{-5} 4; α(P)=1.219×10^{-6} 18 B(E1)(W.u.)=3.9×10^{-12} 10
		300.3 1	4.0 3	1887.67	7^+	[M1]	0.1126	α(K)=0.0951 14; α(L)=0.01370 20; α(M)=0.00300 5 α(N)=0.000695 10; α(O)=0.0001019 15; α(P)=5.87×10^{-6} 9 B(M1)(W.u.)=2.11×10^{-9} 18
		341.8 1	0.9 2	1845.53	8^-	[E1]	0.01248	α(K)=0.01058 15; α(L)=0.001485 21; α(M)=0.000324 5 α(N)=7.44×10^{-5} 11; α(O)=1.065×10^{-5} 15; α(P)=5.64×10^{-7} 8 B(E1)(W.u.)=3.3×10^{-12} 7
		380.2 1	65 2	1807.56	8^-	[E1]	0.00966	α(K)=0.00820 12; α(L)=0.001144 16; α(M)=0.000249 4 α(N)=5.73×10^{-5} 8; α(O)=8.23×10^{-6} 12; α(P)=4.40×10^{-7} 7 B(E1)(W.u.)=1.75×10^{-10} 7
		435.4 1	1.3 2	1751.881	6^+	[E2]	0.0219	α(K)=0.01739 25; α(L)=0.00352 5; α(M)=0.000798 12 α(N)=0.000182 3; α(O)=2.48×10^{-5} 4; α(P)=9.59×10^{-7} 14 B(E2)(W.u.)=5.8×10^{-7} 9
		504.3 1	100 1	1683.35	7^-	[E1]	0.00504	α(K)=0.00429 6; α(L)=0.000589 9; α(M)=0.0001282 18 α(N)=2.95×10^{-5} 5; α(O)=4.26×10^{-6} 6; α(P)=2.34×10^{-7} 4 B(E1)(W.u.)=1.153×10^{-10} +47−43
		550.3 1	6.2 4	1637.92	7^-	[E1]	0.00416	α(K)=0.00354 5; α(L)=0.000484 7; α(M)=0.0001053 15

$^{162}_{66}Dy_{96}$-38

γ(^{162}Dy) (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
								α(N)=2.42×10^{-5} *4*; α(O)=3.51×10^{-6} *5*; α(P)=1.94×10^{-7} *3* B(E1)(W.u.)=5.50×10^{-12} *+41−39*
2187.9	8$^+$	1266.5 *2*	0.6 *2*	921.28	8$^+$	[M1]	0.00303	α(K)=0.00257 *4*; α(L)=0.000352 *5*; α(M)=7.68×10^{-5} *11* α(N)=1.778×10^{-5} *25*; α(O)=2.62×10^{-6} *4*; α(P)=1.543×10^{-7} *22*; α(IPF)=1.618×10^{-5} *23* B(M1)(W.u.)=4.2×10^{-12} *+13−14*
		1639.2 *2*	1.0 *2*	548.520	6$^+$	[E2]	1.28×10^{-3}	α(K)=0.000980 *14*; α(L)=0.0001350 *19*; α(M)=2.94×10^{-5} *5* α(N)=6.80×10^{-6} *10*; α(O)=9.93×10^{-7} *14*; α(P)=5.66×10^{-8} *8*; α(IPF)=0.0001243 *18* B(E2)(W.u.)=5.9×10^{-10} *12*
2189.71	(2$^+$)	1226.4 *2*	66 *19*	962.940	3$^+$			
		2110.0 *4*	100 *16*	80.661	2$^+$			
		2190.8 *6*	22 *9*	0.0	0$^+$			
2211.59	9$^+$	170.7 *2*	63 *7*	2040.97	8$^+$	E2+M1	0.47 *7*	α(K)=0.349 *96*; α(L)=0.090 *26*; α(M)=0.0207 *66* α(N)=0.0047 *15*; α(O)=0.00062 *15*; α(P)=1.96×10^{-5} *80*
		323.9 *1*	100 *7*	1887.67	7$^+$	E2	0.0512	α(K)=0.0389 *6*; α(L)=0.00953 *14*; α(M)=0.00219 *3* α(N)=0.000497 *7*; α(O)=6.59×10^{-5} *10*; α(P)=2.05×10^{-6} *3*
		333.9 *2*	30 *4*	1878.05	9$^+$	E2+M1	0.066 *20*	α(K)=0.054 *18*; α(L)=0.0094 *9*; α(M)=0.00211 *16* α(N)=0.00048 *4*; α(O)=6.8×10^{-5} *9*; α(P)=3.2×10^{-6} *13*
		541.4 *2*	11	1670.505	8$^+$			
2234.18	10$^-$	356.2 *1*	62 *3*	1878.05	9$^+$			
		388.5 *1*	100 *3*	1845.53	8$^-$			
2262.30	10$^+$	276.6[e] *2*	<50	1985.88	8$^+$			
		887.3 *1*	100	1375.08	10$^+$	M1	0.00710	α(K)=0.00603 *9*; α(L)=0.000837 *12*; α(M)=0.000183 *3* α(N)=4.23×10^{-5} *6*; α(O)=6.22×10^{-6} *9*; α(P)=3.64×10^{-7} *6* Mult.: from (α,2nγ), α(K)exp=0.0082 *12*, which gives mult=M1.
		1340.9 *5*	≤77	921.28	8$^+$			from (α,2nγ). γ not reported in (^{7}Li,p4nγ).
2280.88	11$^-$	905.8 *1*	100	1375.08	10$^+$	E1	1.50×10^{-3}	α(K)=0.001286 *18*; α(L)=0.0001713 *24*; α(M)=3.72×10^{-5} *6* α(N)=8.58×10^{-6} *12*; α(O)=1.251×10^{-6} *18*; α(P)=7.16×10^{-8} *10* Mult.: from (α,2nγ), α(K)exp≤0.0013, which gives mult=E1.
2292.4	5$^+$	1231.4	2.2×10^2 *7*	1060.991	4$^+$			
		1329.4	100	962.940	3$^+$			
2314.1		2233.3 *5*	100 *16*	80.661	2$^+$			
		2315.1[c] *12*	97[c] *30*	0.0	0$^+$			
2330.95	11$^-$	370.9 *1*	53 *6*	1959.36	9$^-$			γ not reported in (α,2nγ).
		430.4 *2*	12	1901.10	12$^+$			I_γ: from Iγ(430.4γ)/Iγ(957.0γ) in (α,2nγ) and Iγ(955.8γ). γ not reported in the heavy-ion studies.
		955.8 *1*	100 *6*	1375.08	10$^+$			
2337.35	11$^+$	459.1 *1*	100 *4*	1878.05	9$^+$			
		962.3 *1*	46 *2*	1375.08	10$^+$			

From ENSDF

$^{162}_{66}$Dy$_{96}$-39

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
2368.9	(9^+)	181	100	2187.9	8^+			
2371.3	$1^-,2,3$	1161.1 *6*	52 *10*	1210.089	3^-			
		1223.0 *6*	100 *13*	1148.232	2^-			
		1483.3 *5*	35 *10*	888.161	2^+			
		2290.2 *10*	16 *3*	80.661	2^+			
2394.85	1^+	2314.1 *2*	51 *3*	80.661	2^+	[M1]	1.26×10^{-3}	B(M1)(W.u.)=0.0540 *+47−43* α(K)=0.000640 *9*; α(L)=8.63×10^{-5} *12*; α(M)=1.88×10^{-5} *3* α(N)=4.34×10^{-6} *6*; α(O)=6.41×10^{-7} *9*; α(P)=3.81×10^{-8} *6*; α(IPF)=0.000514 *8*
		2394.9 *2*	100 *5*	0.0	0^+	M1	1.25×10^{-3}	B(M1)(W.u.)=0.096 *+7−6* α(K)=0.000593 *9*; α(L)=7.98×10^{-5} *12*; α(M)=1.737×10^{-5} *25* α(N)=4.02×10^{-6} *6*; α(O)=5.93×10^{-7} *9*; α(P)=3.52×10^{-8} *5*; α(IPF)=0.000560 *8* B(M1)(W.u.) computed directly from B(M1)↑.
2398.27	10^+	186.6[e]		2211.59	9^+			$E\gamma$ and placement is from (α,2nγ).
		357.3 *2*	100	2040.97	8^+			E_γ: from (α,2nγ).
2421.0	6^+	1238.2	100	1182.763	5^+			
2482.34	12^-	151.0 *1*	11 *2*	2330.95	11^-			
		202.0 *1*	20 *2*	2280.88	11^-			
		371.9 *1*	100 *5*	2110.70	10^-			
2491.65	14^+	590.6 *1*	100	1901.10	12^+	[E2]	0.00995	B(E2)(W.u.)=330 *+42−33* α(K)=0.00812 *12*; α(L)=0.001421 *20*; α(M)=0.000318 *5* α(N)=7.29×10^{-5} *11*; α(O)=1.018×10^{-5} *15*; α(P)=4.61×10^{-7} *7*
2503.83	11^-	403.3 *2*	<33	2100.66	9^-			
		602.7 *2*	36 *7*	1901.10	12^+			E_γ,I_γ: from (α,2nγ). γ not reported in the heavy-ion studies.
		1129.0 *2*	100	1375.08	10^+	E1	1.00×10^{-3}	α(K)=0.000855 *12*; α(L)=0.0001128 *16*; α(M)=2.45×10^{-5} *4* α(N)=5.65×10^{-6} *8*; α(O)=8.26×10^{-7} *12*; α(P)=4.78×10^{-8} *7*; α(IPF)=4.47×10^{-6} *7* Mult.: from (α,2nγ), α(K)exp=0.0008 *2*, which is interpreted as E1, but peak is doublet including an E1 γ from the 1210 level.
2510.3		2429.6 *10*	100	80.661	2^+			
2520.4	1^-	2440	100	80.661	2^+	[E1]	1.14×10^{-3}	B(E1)(W.u.)=0.00113 *+11−9* α(K)=0.000237 *4*; α(L)=3.06×10^{-5} *5*; α(M)=6.61×10^{-6} *10* α(N)=1.528×10^{-6} *22*; α(O)=2.25×10^{-7} *4*; α(P)=1.333×10^{-8} *19*; α(IPF)=0.000863 *12*
		2520	84 *6*	0.0	0^+	E1	1.18×10^{-3}	B(E1)(W.u.)=8.6×10^{-4} *+8−7* α(K)=0.000226 *4*; α(L)=2.91×10^{-5} *4*; α(M)=6.29×10^{-6} *9* α(N)=1.452×10^{-6} *21*; α(O)=2.14×10^{-7} *3*; α(P)=1.269×10^{-8} *18*; α(IPF)=0.000912 *13* B(E1)(W.u.) computed directly from B(E1)↑.

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
2534.86	12^+	272.6[e] *2*	6.2 *11*	2262.30	10^+	[E2]	0.0868	B(E2)(W.u.)=2.4×10^2 *+3−4* α(K)=0.0637 *9*; α(L)=0.0179 *3*; α(M)=0.00413 *6* α(N)=0.000937 *14*; α(O)=0.0001221 *18*; α(P)=3.26×10^{-6} *5* I_γ: computed from Iγ(272γ)/Iγ(447γ) in (^{162}Dy,^{162}Dy′γ) and Iγ(447). 2002Ju08, (^{7}Li,p4nγ), report Iγ<15. B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		447.3 *1*	100 *3*	2087.49	10^+	[E2]	0.0204	B(E2)(W.u.)=3.2×10^2 *+1−11* α(K)=0.01621 *23*; α(L)=0.00324 *5*; α(M)=0.000732 *11* α(N)=0.0001672 *24*; α(O)=2.28×10^{-5} *4*; α(P)=8.97×10^{-7} *13* B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		633.6 *1*	74 *3*	1901.10	12^+			
		1160.1 *2*	29 *3*	1375.08	10^+			I_γ: from 2002Ju08, (^{7}Li,p4nγ). 2001Wu05, in (^{162}Dy,^{162}Dy′γ), report Iγ(1160γ)/Iγ(633γ)=1.36 *16*.
2537.4	1	2457	26 *13*	80.661	2^+			
		2537	100	0.0	0^+			
2554.3		2473.6 *6*	100 *13*	80.661	2^+			
		2554.5 *10*	47 *13*	0.0	0^+			
2567.9	(10^+)	199		2368.9	(9^+)			
		380		2187.9	8^+			
2569.4	1^+	2489	39 *8*	80.661	2^+	[M1]	1.25×10^{-3}	B(M1)(W.u.)=0.0102 *18* α(K)=0.000544 *8*; α(L)=7.32×10^{-5} *11*; α(M)=1.592×10^{-5} *23* α(N)=3.68×10^{-6} *6*; α(O)=5.43×10^{-7} *8*; α(P)=3.23×10^{-8} *5*; α(IPF)=0.000613 *9*
		2569	100	0.0	0^+	M1	1.25×10^{-3}	B(M1)(W.u.)=0.0239 *+32−25* α(K)=0.000507 *8*; α(L)=6.82×10^{-5} *10*; α(M)=1.482×10^{-5} *21* α(N)=3.43×10^{-6} *5*; α(O)=5.06×10^{-7} *7*; α(P)=3.01×10^{-8} *5*; α(IPF)=0.000657 *10* B(M1)(W.u.) computed directly from B(M1)↑.
2601.32	11^+	263.3 *2*	<83	2337.35	11^+			
		389.9 *1*	100 *17*	2211.59	9^+			
2622.78	12^+	360.8[@] *2*	8×10^1[@] *4*	2262.30	10^+	[E2]	0.0372	B(E2)(W.u.)=9×10^1 *+2−7* α(K)=0.0288 *4*; α(L)=0.00655 *10*; α(M)=0.001494 *22* α(N)=0.000340 *5*; α(O)=4.56×10^{-5} *7*; α(P)=1.548×10^{-6} *22* B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		535.5[@] *1*	6.6×10^2[@] *9*	2087.49	10^+	[E2]	0.01270	B(E2)(W.u.)=95 *+8−29* α(K)=0.01029 *15*; α(L)=0.00188 *3*; α(M)=0.000422 *6* α(N)=9.66×10^{-5} *14*; α(O)=1.339×10^{-5} *19*; α(P)=5.79×10^{-7} *9* B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		721.7[@] *1*	100[@]	1901.10	12^+			

$\gamma(^{162}$Dy) (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Mult.[&]	α[a]	Comments
2622.78	12^+	1247.9[@] *2*	3.4×10^2[@] *5*	1375.08	10^+			
2663.0	0^+	2663.0 *8*	100	0.0	0^+			
2670.65	12^-	333.6 *2*	19	2337.35	11^+			E_γ,I_γ: values from (α,2nγ). γ not reported in the heavy-ion studies.
		436.4 *1*	100	2234.18	10^-			
2682.59	13^-	402.0 *1*	42 *3*	2280.88	11^-			
		781.6 *1*	100 *3*	1901.10	12^+			
2695.9	(10^+)	327	100	2368.9	(9^+)			
2777.99	13^-	446.1 *2*	<25	2330.95	11^-			
		877.0 *1*	100 *5*	1901.10	12^+			
2784.9	(11^+)	217		2567.9	(10^+)			
		416		2368.9	(9^+)			
2802.7	0^+	2721.3 *9*	50 *19*	80.661	2^+			
		2803.2 *8*	100 *19*	0.0	0^+			
2815	1	2735	90 *30*	80.661	2^+			
		2815	100	0.0	0^+			
2817	12^+	419	100	2398.27	10^+			
2859.63	13^+	522.2 *1*	100 *3*	2337.35	11^+			
		958.5 *1*	32 *3*	1901.10	12^+			
2900.0	1^+	2819.0 *4*	46 *2*	80.661	2^+	[M1]	1.27×10^{-3}	B(M1)(W.u.)=0.152 *11* α(K)=0.000413 *6*; α(L)=5.54×10^{-5} *8*; α(M)=1.204×10^{-5} *17* α(N)=2.79×10^{-6} *4*; α(O)=4.11×10^{-7} *6*; α(P)=2.45×10^{-8} *4*; α(IPF)=0.000790 *11* I_γ: from (γ,γ'). Other: 56 *25* from (n,n$'\gamma$).
		2900.3 *4*	100	0.0	0^+	M1	1.29×10^{-3}	B(M1)(W.u.)=0.302 *19* α(K)=0.000389 *6*; α(L)=5.20×10^{-5} *8*; α(M)=1.131×10^{-5} *16* α(N)=2.62×10^{-6} *4*; α(O)=3.86×10^{-7} *6*; α(P)=2.30×10^{-8} *4*; α(IPF)=0.000832 *12* B(M1)(W.u.) computed directly from B(M1)↑.
2909.4	1	2829	100 *28*	80.661	2^+			
		2909	56	0.0	0^+			
2919.55	14^-	237.0 *2*	<10	2682.59	13^-			
		437.2 *1*	100 *4*	2482.34	12^-			
2929.4	1^-	2849	56 *8*	80.661	2^+	[E1]	1.32×10^{-3}	B(E1)(W.u.)=1.76×10^{-4} *+27−24* α(K)=0.000187 *3*; α(L)=2.41×10^{-5} *4*; α(M)=5.20×10^{-6} *8* α(N)=1.202×10^{-6} *17*; α(O)=1.771×10^{-7} *25*; α(P)=1.053×10^{-8} *15*; α(IPF)=0.001104 *16*
		2929	100	0.0	0^+	E1	1.35×10^{-3}	B(E1)(W.u.)=2.90×10^{-4} *+38−31* α(K)=0.000180 *3*; α(L)=2.31×10^{-5} *4*; α(M)=4.99×10^{-6} *7* α(N)=1.153×10^{-6} *17*; α(O)=1.698×10^{-7} *24*; α(P)=1.010×10^{-8} *15*; α(IPF)=0.001143 *16*

$^{162}_{66}$Dy$_{96}$-42

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J_i^π	E_γ[†‡#]	I_γ	E_f	J_f^π	Mult.[&]	α[a]	Comments
2934.55	14^+	311.6 *2*	5.1 *8*	2622.78	12^+	[E2]	0.0575	B(E2)(W.u.)=53 *+65−19* α(K)=0.0434 *7*; α(L)=0.01094 *16*; α(M)=0.00251 *4* α(N)=0.000571 *9*; α(O)=7.54×10^{-5} *11*; α(P)=2.28×10^{-6} *4* I_γ: from 2001Wu05 (1620y,^{162}Dy′γ). 2002Ju08, (^{7}Li,p4nγ), report Iγ<13. B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		399.8 *1*	100 *3*	2534.86	12^+	[E2]	0.0278	B(E2)(W.u.)=3.1×10^2 *+8−11* α(K)=0.0218 *3*; α(L)=0.00464 *7*; α(M)=0.001055 *15* α(N)=0.000241 *4*; α(O)=3.25×10^{-5} *5*; α(P)=1.189×10^{-6} *17* B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		442.7 *1*	21 *3*	2491.65	14^+			
		1033.8 *2*	16 *3*	1901.10	12^+			
2963.94	13^-	460.2 *1*	100 *9*	2503.83	11^-			
		1062.6 *2*	100 *9*	1901.10	12^+			
		1588.6 *3*		1375.08	10^+			γ placed only by 2006Ap01 (α,2nγ).
2965	1^+	2885	42 *10*	80.661	2^+	[M1]	1.28×10^{-3}	B(M1)(W.u.)=0.0082 *+20−18* α(K)=0.000393 *6*; α(L)=5.26×10^{-5} *8*; α(M)=1.144×10^{-5} *16* α(N)=2.65×10^{-6} *4*; α(O)=3.91×10^{-7} *6*; α(P)=2.33×10^{-8} *4*; α(IPF)=0.000824 *12*
		2965	100	0.0	0^+	M1	1.30×10^{-3}	B(M1)(W.u.)=0.0180 *+37−25* α(K)=0.000370 *6*; α(L)=4.96×10^{-5} *7*; α(M)=1.077×10^{-5} *15* α(N)=2.49×10^{-6} *4*; α(O)=3.68×10^{-7} *6*; α(P)=2.19×10^{-8} *3*; α(IPF)=0.000866 *13* B(M1)(W.u.) computed directly from B(M1)↑.
3052.82	13^+	451.5 *1*	100	2601.32	11^+			
3061.2	1^+	2980.3 *4*	29 *8*	80.661	2^+	[M1]	1.30×10^{-3}	B(M1)(W.u.)=0.048 *+11−12* α(K)=0.000366 *6*; α(L)=4.90×10^{-5} *7*; α(M)=1.065×10^{-5} *15* α(N)=2.46×10^{-6} *4*; α(O)=3.64×10^{-7} *5*; α(P)=2.17×10^{-8} *3*; α(IPF)=0.000873 *13* I_γ: from (γ,γ'). Other: 41 *6* from (n,n′γ).
		3061.4 *4*	100	0.0	0^+	M1	1.32×10^{-3}	B(M1)(W.u.)=0.152 *+21−17* α(K)=0.000345 *5*; α(L)=4.62×10^{-5} *7*; α(M)=1.004×10^{-5} *14* α(N)=2.32×10^{-6} *4*; α(O)=3.43×10^{-7} *5*; α(P)=2.04×10^{-8} *3*; α(IPF)=0.000914 *13* B(M1)(W.u.) computed directly from B(M1)↑.
3123.25	14^-	452.6 *1*	100	2670.65	12^-			
3138.55	16^+	647.0 *1*	100	2491.65	14^+			
3145.63	15^-	463.2 *1*	100 *3*	2682.59	13^-			
		654.2 *1*	66 *3*	2491.65	14^+			
3145.64	14^+	523.2 *1*	82 *6*	2622.78	12^+	[E2]	0.01348	B(E2)(W.u.)=3.2×10^2 *6*

$^{162}_{66}Dy_{96}$-43

Adopted Levels, Gammas (continued)

$\gamma(^{162}$Dy) (continued)

E_i(level)	J^{π}_i	E_{γ}[†‡#]	I_{γ}	E_f	J^{π}_f	Mult.[&]	α[a]	Comments
								α(K)=0.01090 16; α(L)=0.00201 3; α(M)=0.000452 7 α(N)=0.0001034 15; α(O)=1.432×10^{-5} 20; α(P)=6.12×10^{-7} 9 I_{γ}: from 2002Ju08, (^{7}Li,p4nγ). The value from 2001Wu05 in (^{162}Dy,^{162}Dy′γ) differs from this. B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
3145.64	14$^+$	610.5 1	100 6	2534.86	12$^+$	[E2]	0.00917	B(E2)(W.u.)=63 21 α(K)=0.00751 11; α(L)=0.001296 19; α(M)=0.000290 4 α(N)=6.64×10^{-5} 10; α(O)=9.30×10^{-6} 13; α(P)=4.27×10^{-7} 6 I_{γ}: from 2002Ju08, (^{7}Li,p4nγ). The value from 2001Wu05 in (^{162}Dy,^{162}Dy′γ) differs from this. B(E2)(W.u.) is from 2001Wu05 (^{162}Dy,^{162}Dy′γ).
		1244.2 2	29 6	1901.10	12$^+$			I_{γ}: from 2002Ju08, (^{7}Li,p4nγ). The value from 2001Wu05 in (^{162}Dy,^{162}Dy′γ) differs from this.
3269	14$^+$	452	100	2817	12$^+$			
3293.21	15$^-$	515.1 1	46 8	2777.99	13$^-$			
		801.6 1	100 8	2491.65	14$^+$			
3373.94	16$^+$	439.4 1	100 3	2934.55	14$^+$			
		882.2 2	<13	2491.65	14$^+$			
3415.95	16$^-$	496.4 1	100	2919.55	14$^-$			
3434.04	15$^+$	574.3 1	100 4	2859.63	13$^+$			
		942.5 1	21 4	2491.65	14$^+$			
3474.84	15$^-$	510.9 1	100	2963.94	13$^-$			
3564.22	15$^+$	511.4 1	100	3052.82	13$^+$			
3627.26	16$^-$	504.0 1	100	3123.25	14$^-$			
3666.92	17$^-$	521.1 1	100	3145.63	15$^-$			
3734.23	16$^+$	588.6 1	100	3145.64	14$^+$			
3830.93	18$^+$	692.4 1	100	3138.55	16$^+$			
3835	16$^+$	566	100	3269	14$^+$			
3874.28	17$^-$	581.0 1	100 10	3293.21	15$^-$			
		735.8 1	60 10	3138.55	16$^+$			
3878.37	18$^+$	504.4 1	100 4	3373.94	16$^+$			
		739.8 1	67 4	3138.55	16$^+$			
3966.65	18$^-$	550.7 1	100	3415.95	16$^-$			
4037.24	17$^-$	562.4 1	100	3474.84	15$^-$			
4039.64	17$^+$	605.6 1	100	3434.04	15$^+$			
4195.56	18$^-$	568.3 1	100	3627.26	16$^-$			
4243.52	19$^-$	576.6 1	100	3666.92	17$^-$			
4342.53	18$^+$	608.3 1	100	3734.23	16$^+$			
4434.60	20$^+$	556.2 1	100 6	3878.37	18$^+$			
		603.7 1	88 6	3830.93	18$^+$			
4516.28	19$^-$	642.0 1	100	3874.28	17$^-$			
4568.76	20$^-$	602.1 1	100	3966.65	18$^-$			

$^{162}_{66}$Dy$_{96}$-44

Adopted Levels, Gammas (continued)

$\gamma(^{162}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡#]	I_γ	E_f	J^π_f	Comments
4577.73	20^+	746.8 *1*	100	3830.93	18^+	E_γ: from 2002Ju08, (^{7}Li,p4nγ).
4650.55	19^-	613.3 *1*	100	4037.24	17^-	
4873.42	21^-	629.9 *1*	100	4243.52	19^-	
5061.80	22^+	627.2 *1*	100	4434.60	20^+	
5221.06	22^-	652.3 *1*	100	4568.76	20^-	
5352.0	22^+	774.3 *2*	<100	4577.73	20^+	
5554.13	23^-	680.7 *1*	100	4873.42	21^-	
5747.20	24^+	685.4 *1*	100	5061.80	22^+	
5920.9	24^-	699.8 *2*	<100	5221.06	22^-	
6153.2	24^+	801.2 *2*	<100	5352.0	22^+	
6488.7	26^+	741.5 *2*	<100	5747.20	24^+	
7276.0	28^+	787.3 *2*	<100	6488.7	26^+	

† Unplaced γ's are not listed here, see: ^{162}Tb β^- decay; ^{162}Ho ε decay (15 min and 67 min); ^{161}Dy(n,γ) E=th; and ^{162}Dy(n,n$'\gamma$).

‡ Values are from evaluator's selection of the best value, or an average of a few values. Some values without uncertainties are quoted in table 5 of 1995Be02 from unpublished curved-crystal spectrometer data from ^{161}Dy(n,γ) E=th. Where Eγ values are measured in the curved-crystal-based (n,γ) study of 2006Ap01, these values are generally used.

The primary γ's from the capture state for thermal, 2-keV, and 24-keV neutron capture are not included here. See the three ^{161}Dy(n,γ) data sets for these data.

@ The listed Eγ values are from 2002Ju08, (^{7}Li,p4nγ). The Iγ values are from 2001Wu05, (^{162}Dy,^{162}Dy$'\gamma$). They differ markedly from those of 2002Ju08, (^{7}Li,p4nγ).

& Assignments and values are based on the following: ce data from (n,γ) (1967Ba34,2006Ap01), (α,2nγ) (1982Fi15), and ^{162}Ho ε decay (1961Ha23, 1961Jo10); $\gamma(\theta)$ following (α,2nγ) (1982Fi15) and (n,n$'\gamma$) (1977Ho11); and $\gamma\gamma(\theta)$ following (n,γ) (1980Hu06) and Coulomb excitation (1972Do01).

[a] Additional information 25.

[b] If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

[c] Multiply placed with undivided intensity.

[d] Multiply placed with intensity suitably divided.

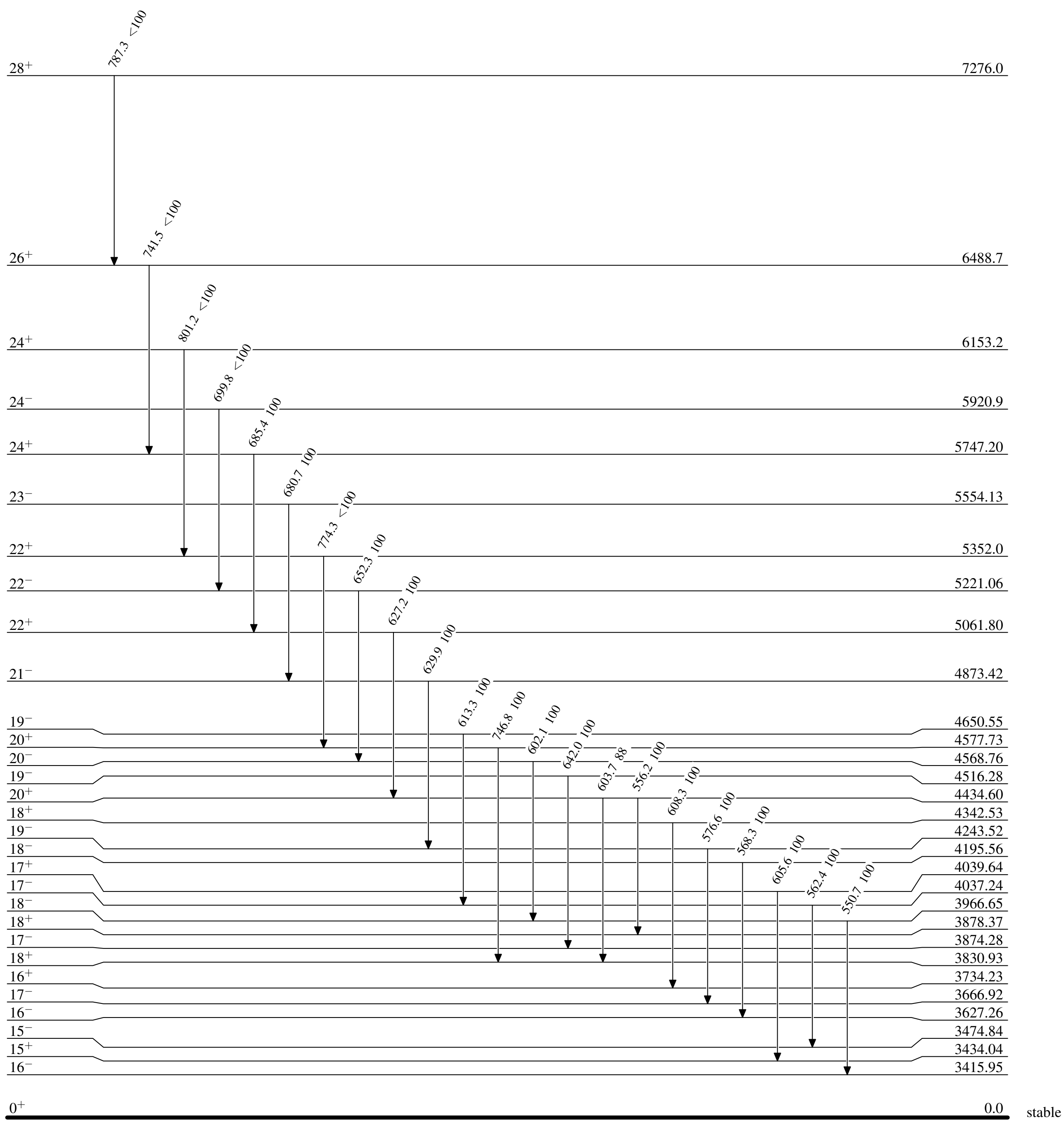
[e] Placement of transition in the level scheme is uncertain.

$^{162}_{66}Dy_{96}$-45

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

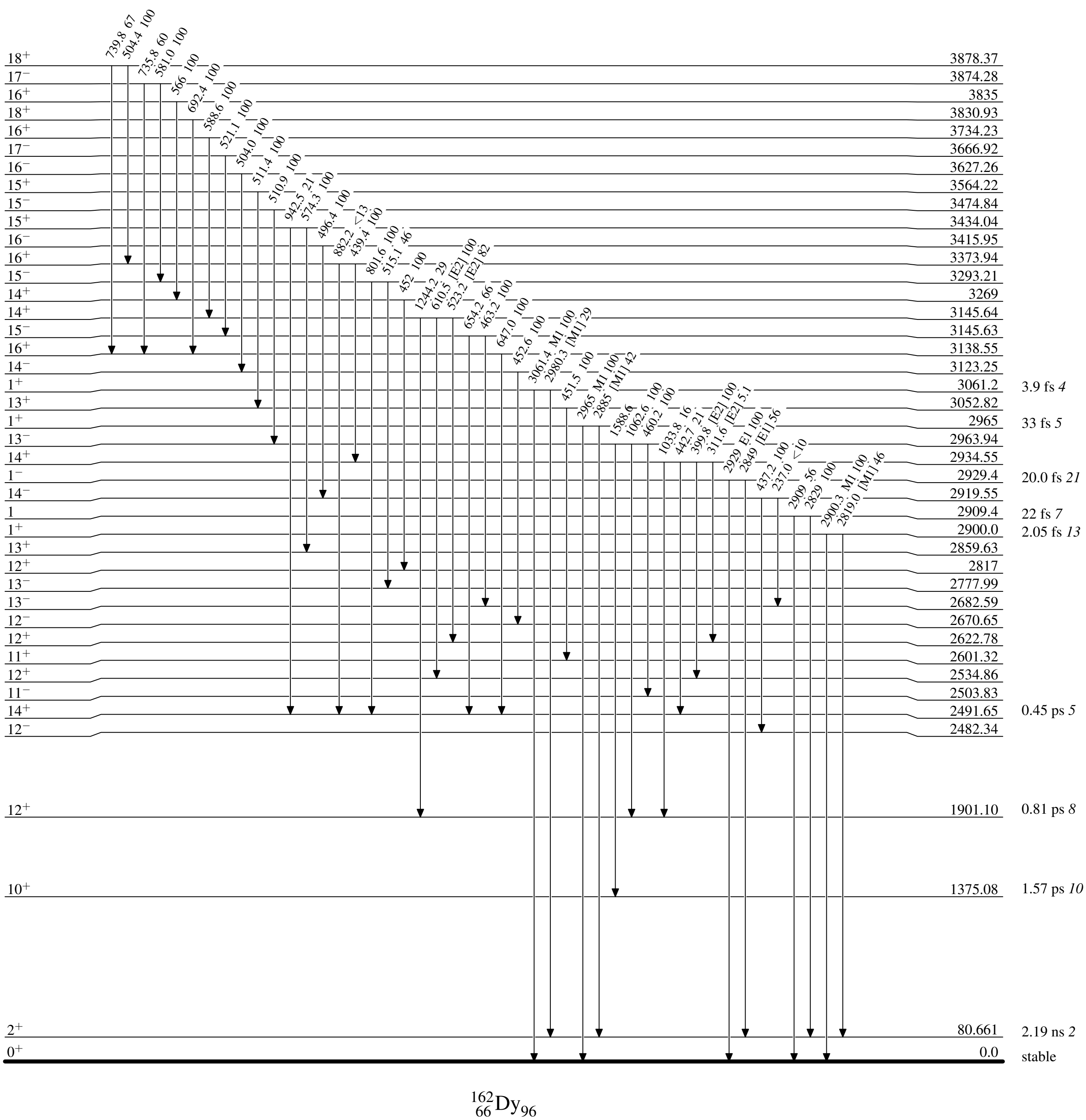


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



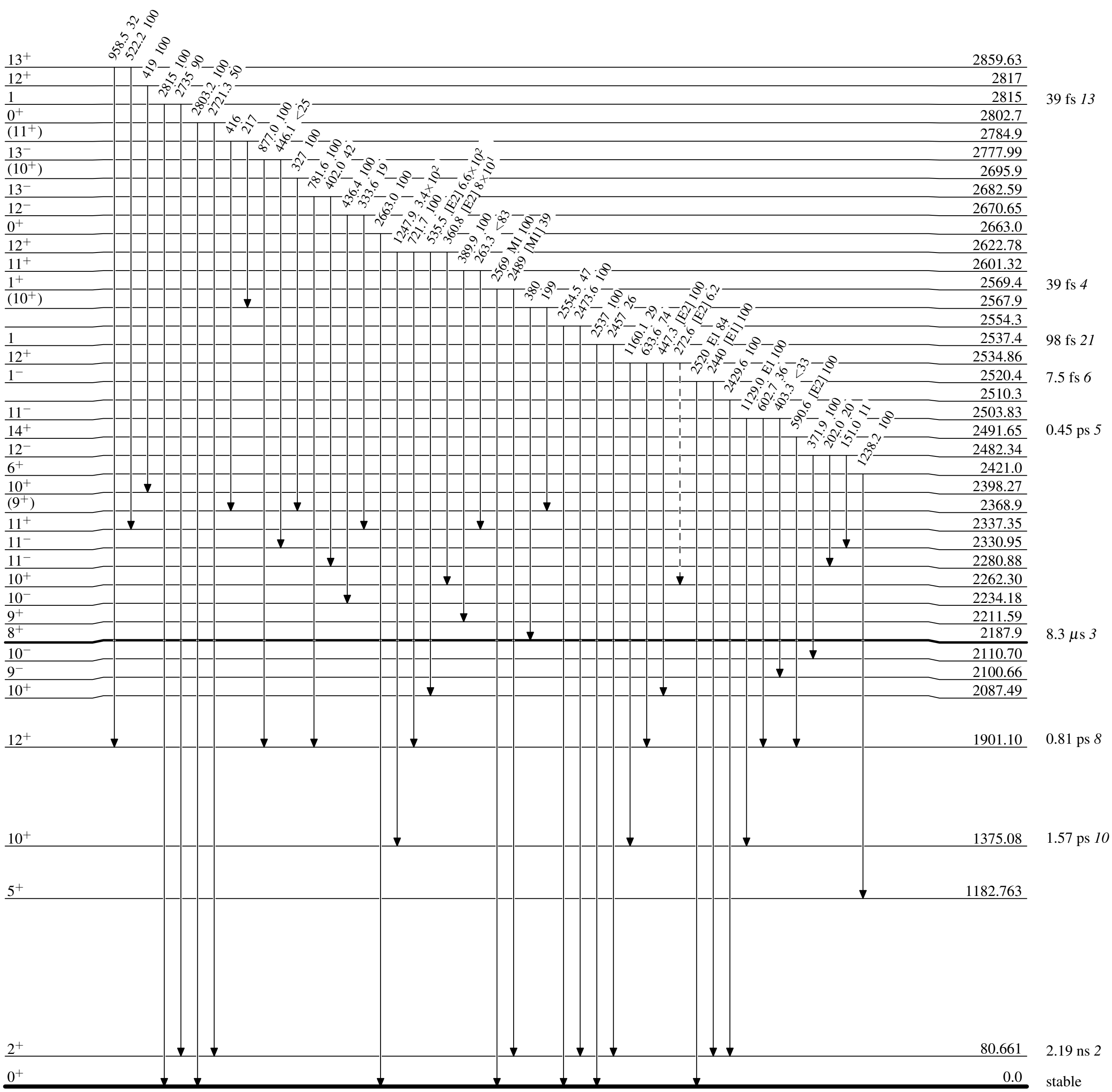
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{162}_{66}Dy_{96}$

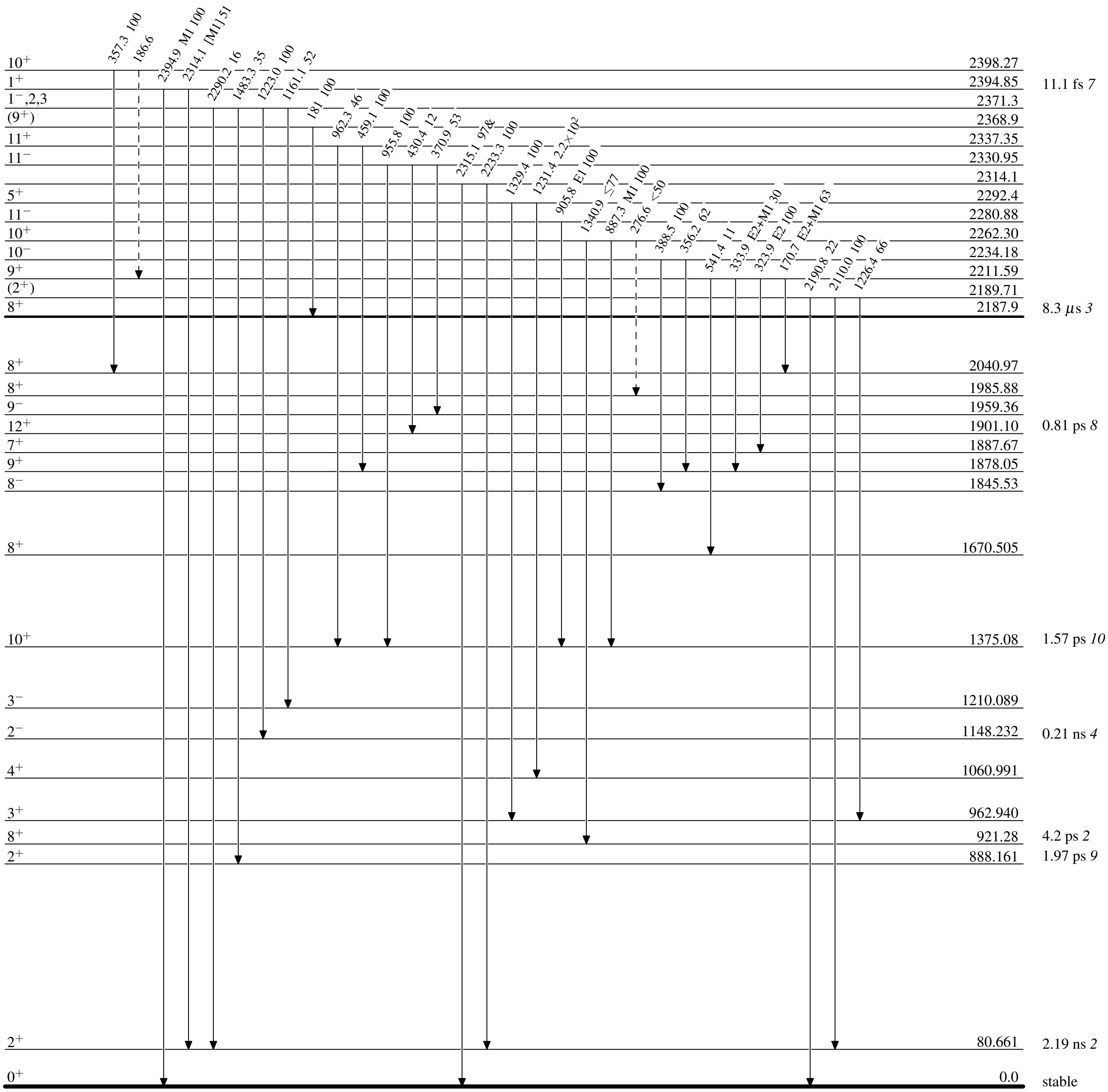
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)

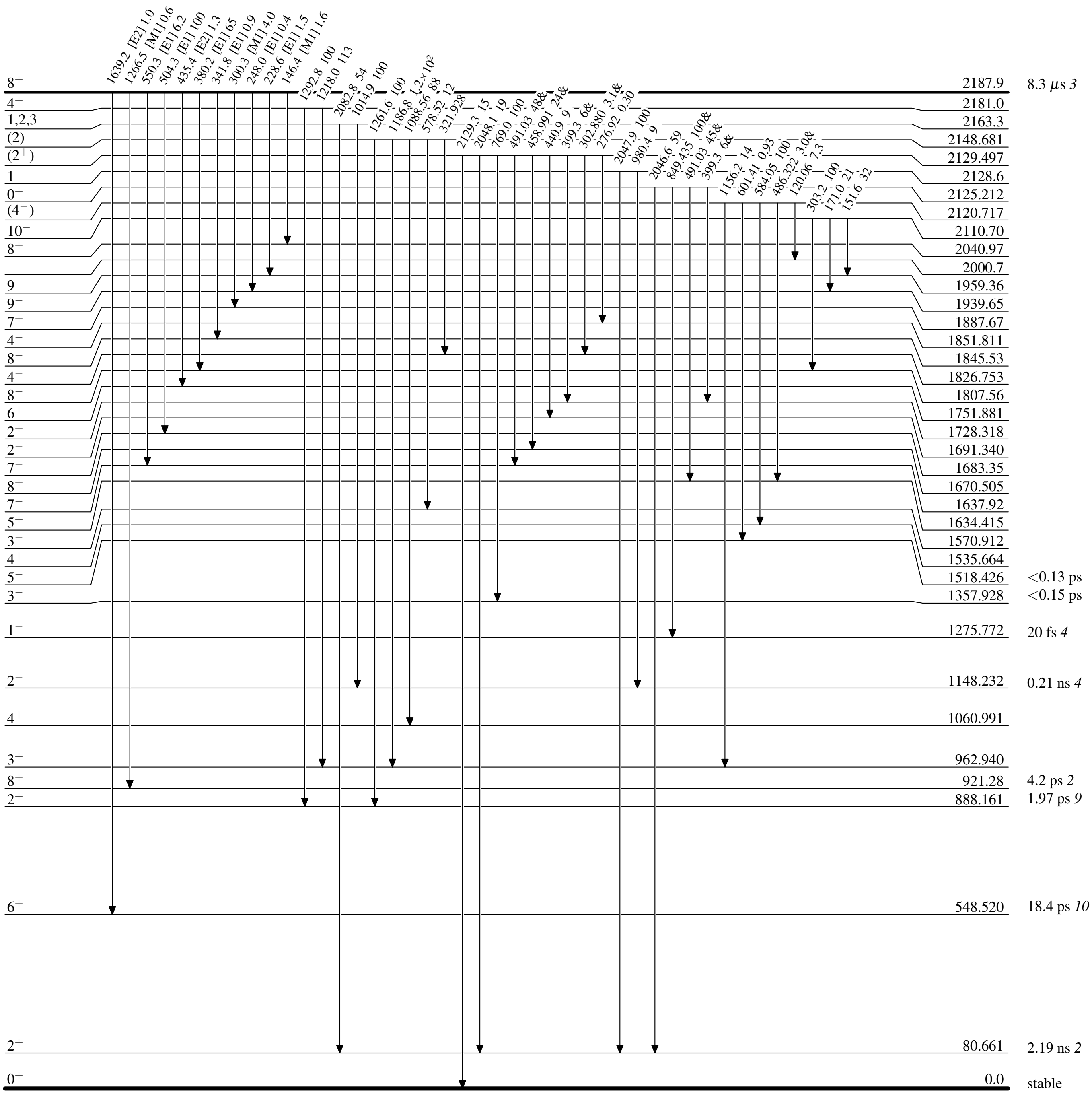


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

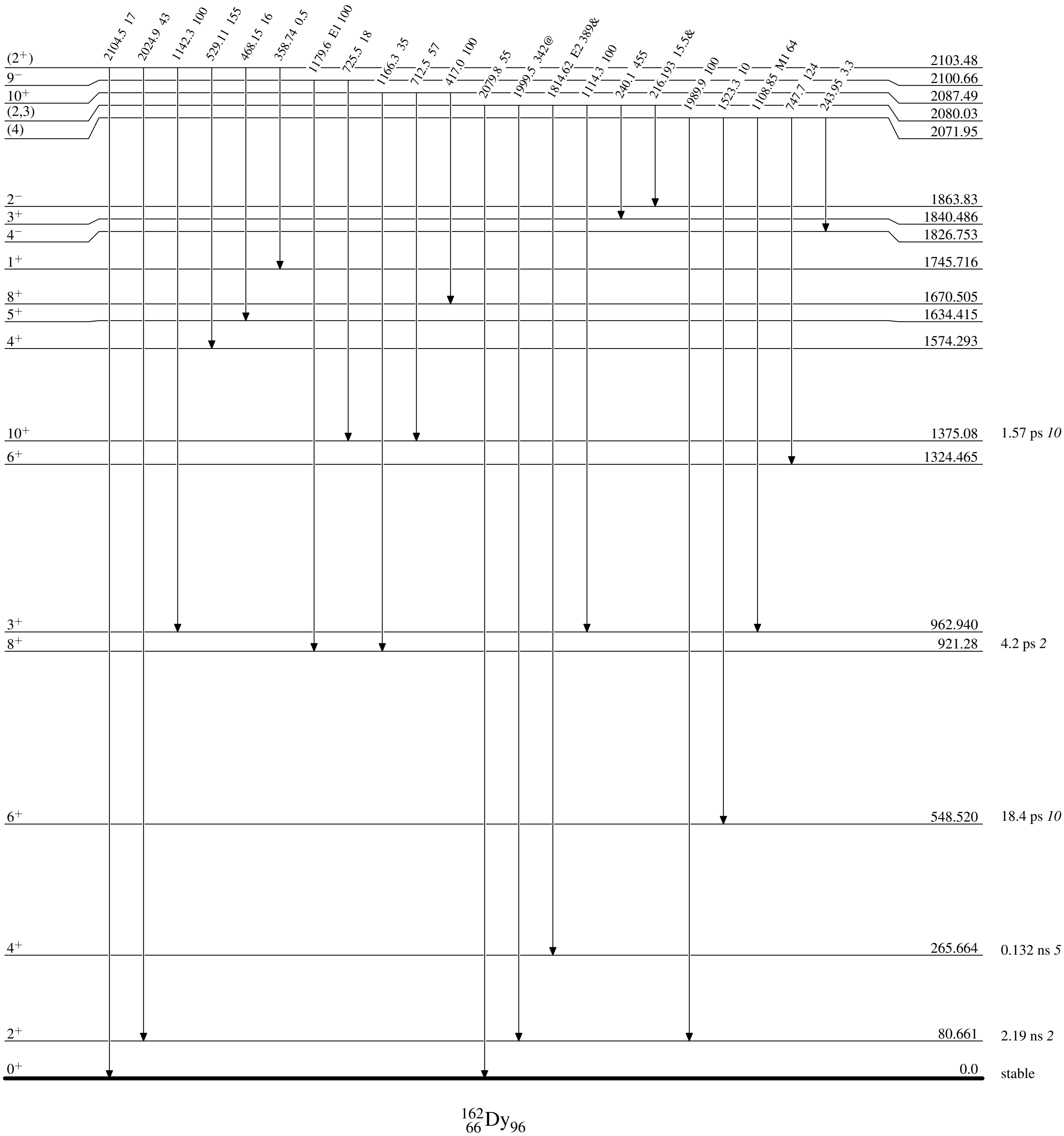


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

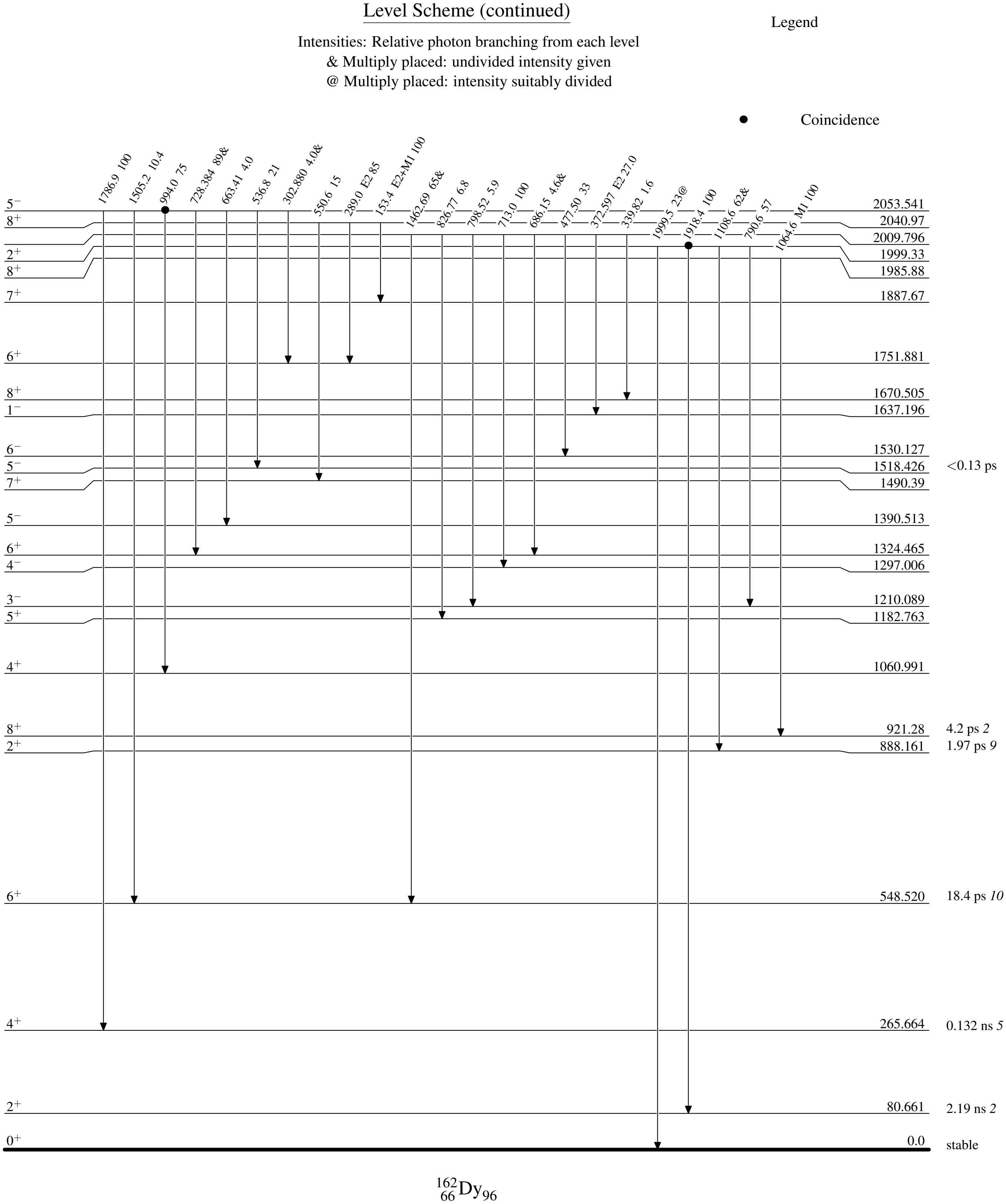
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

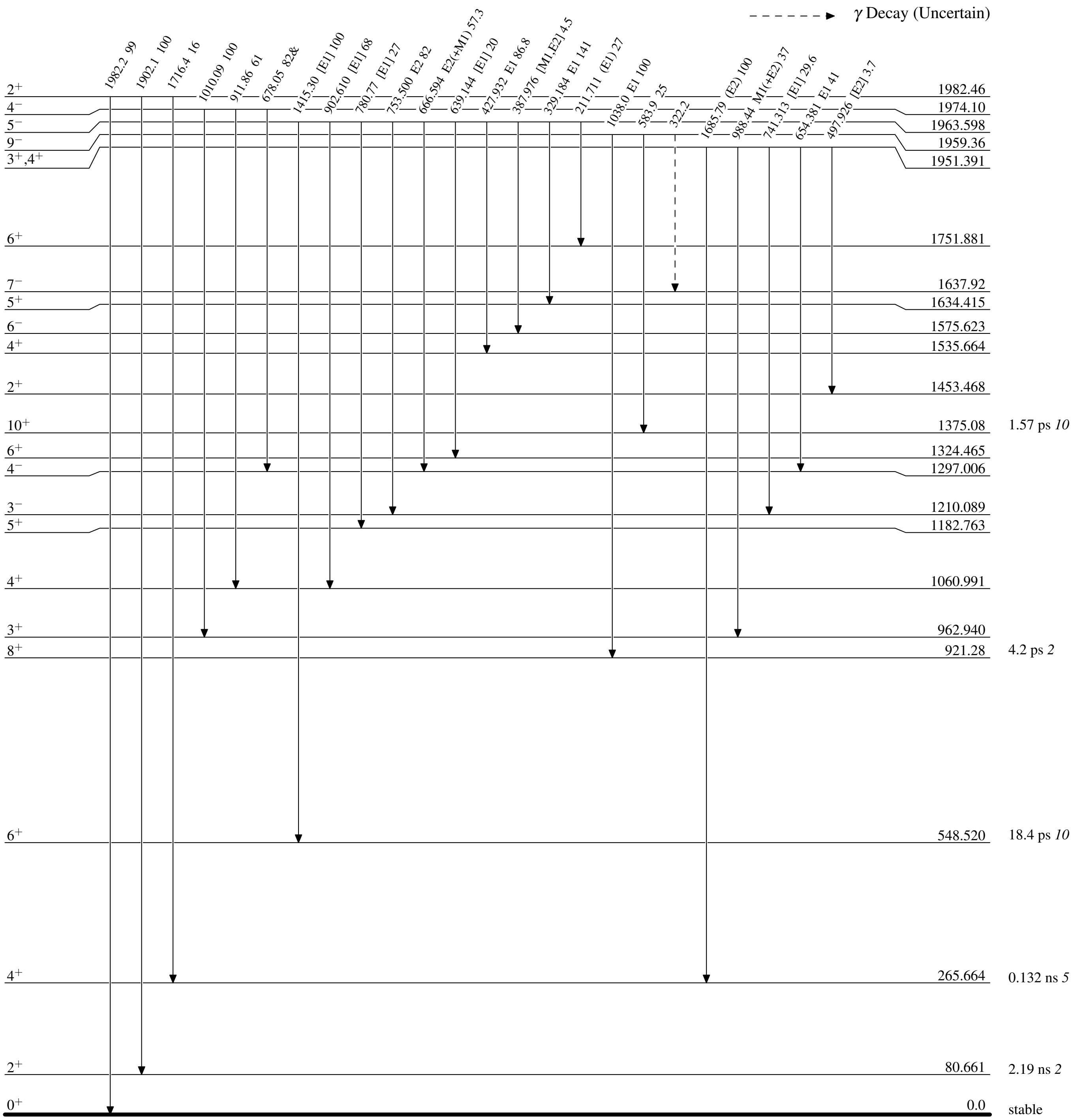


Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

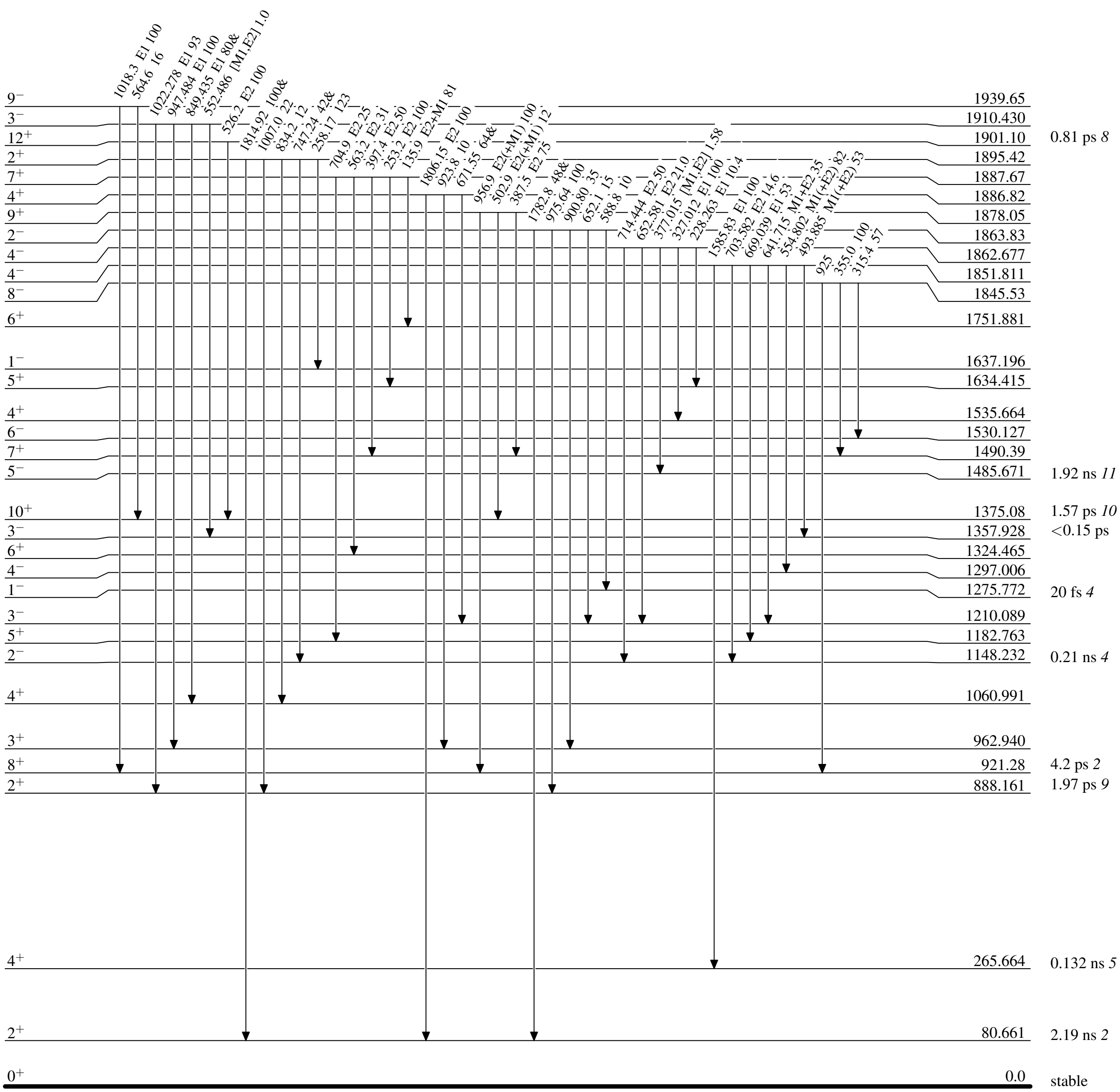


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

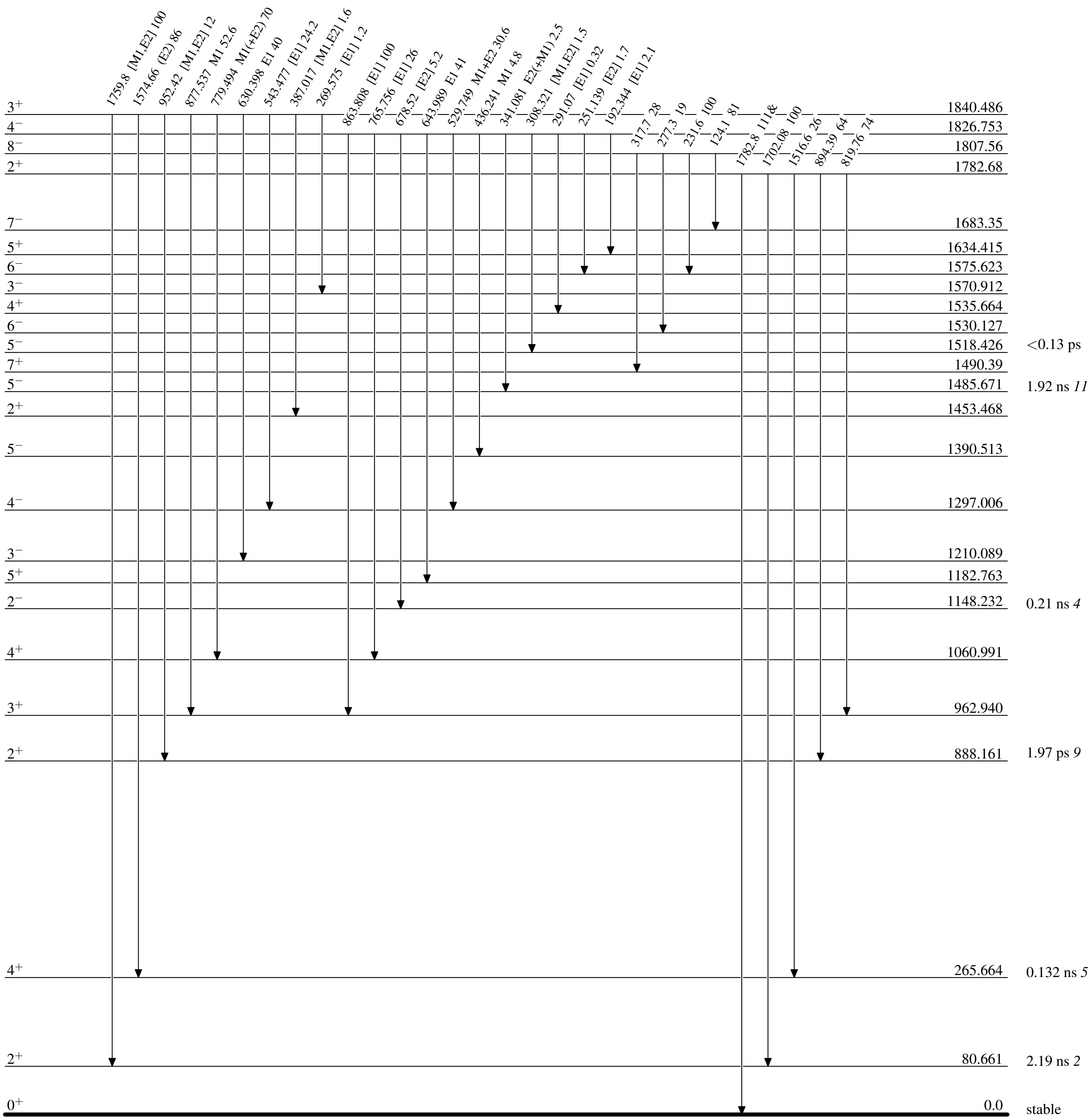


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

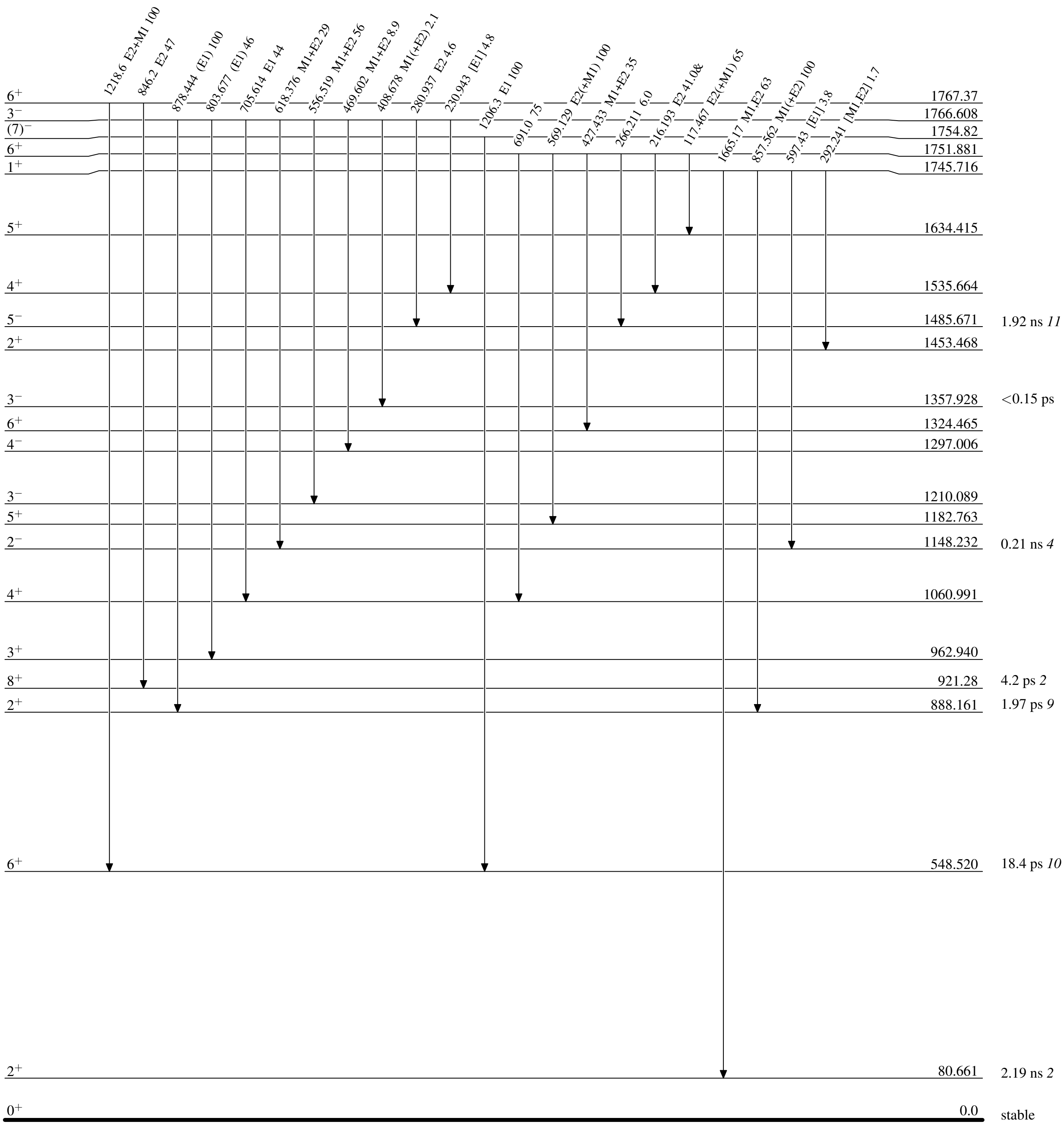


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

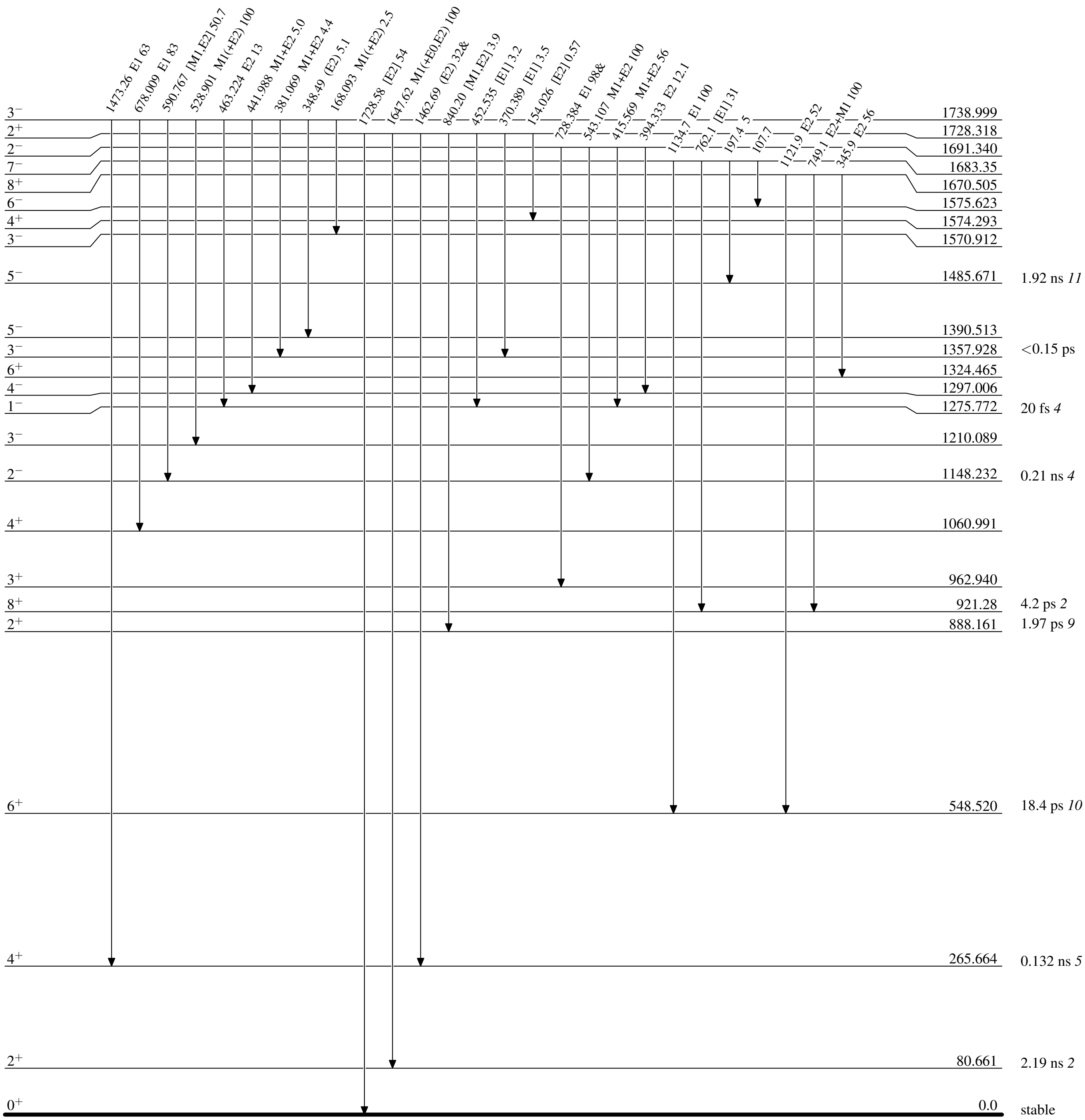


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

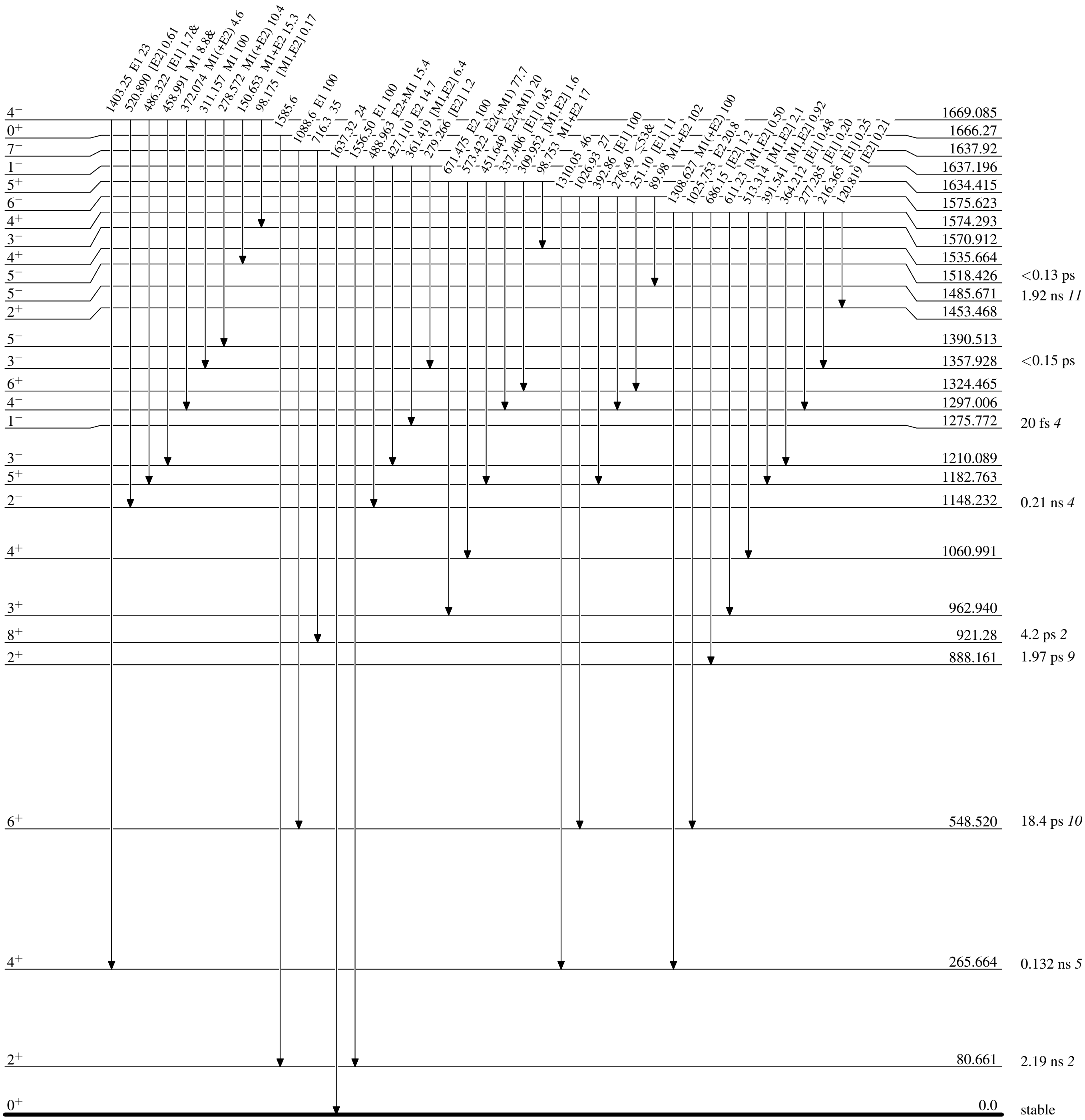


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

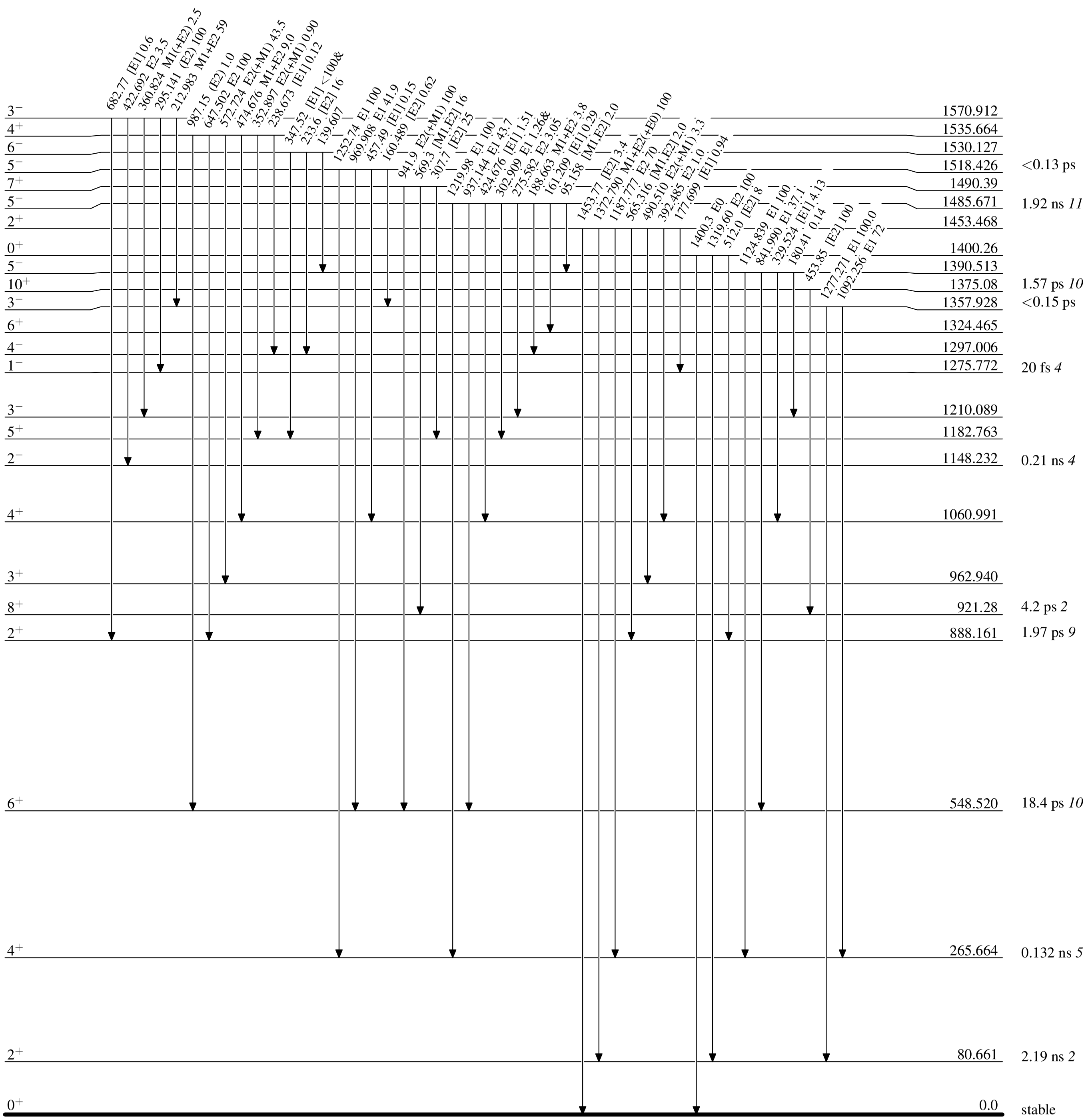


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

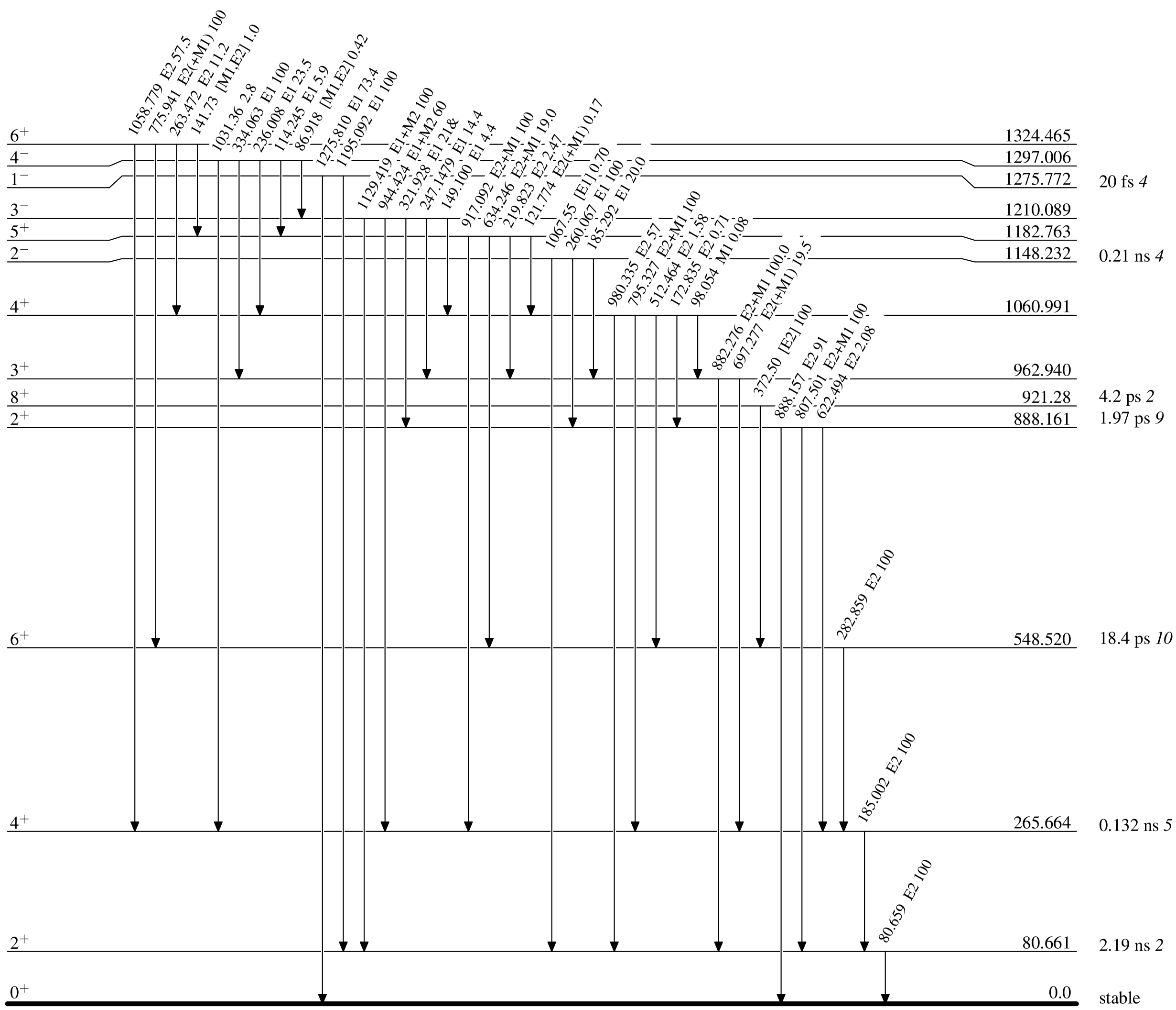


$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas

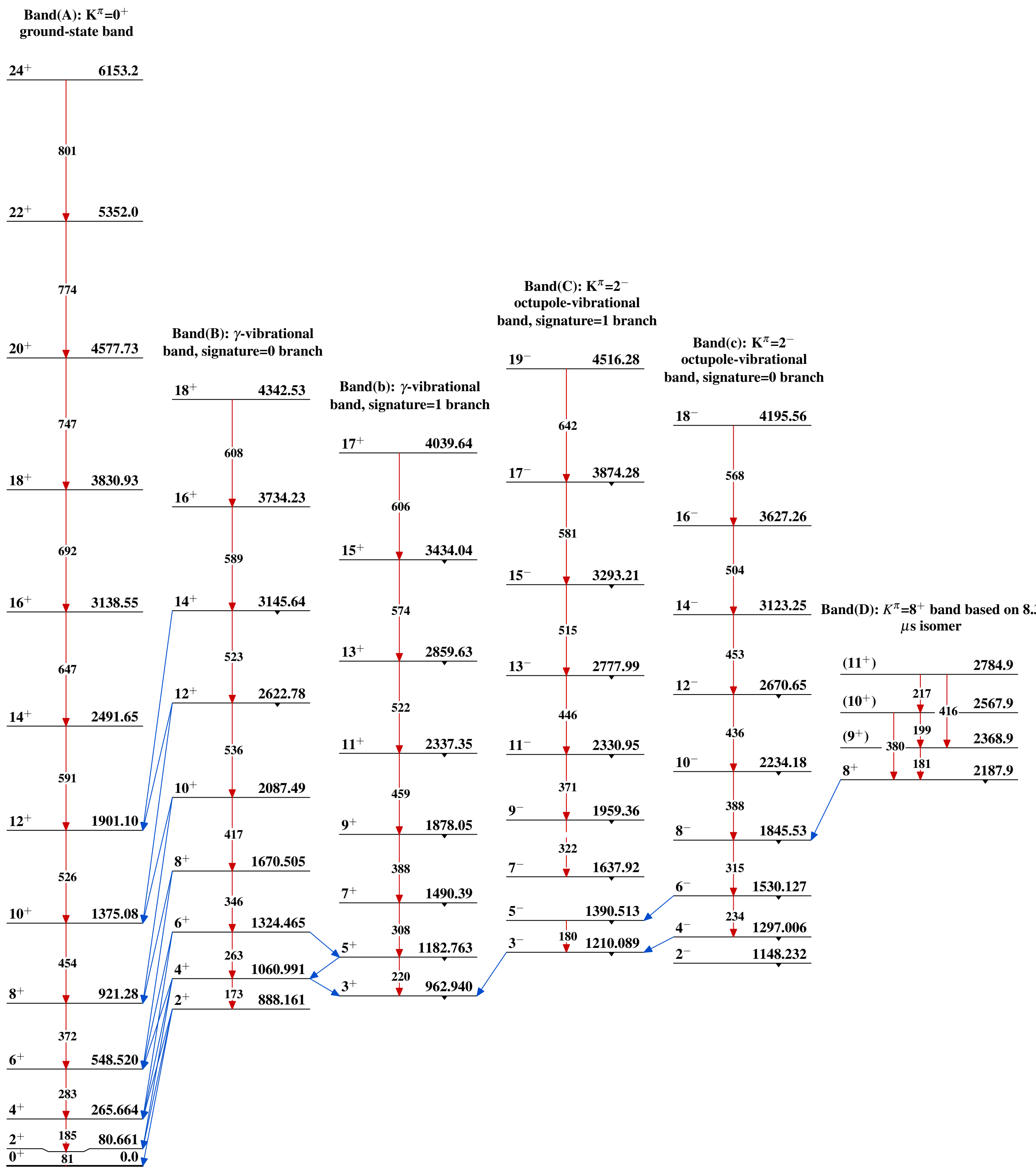
Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



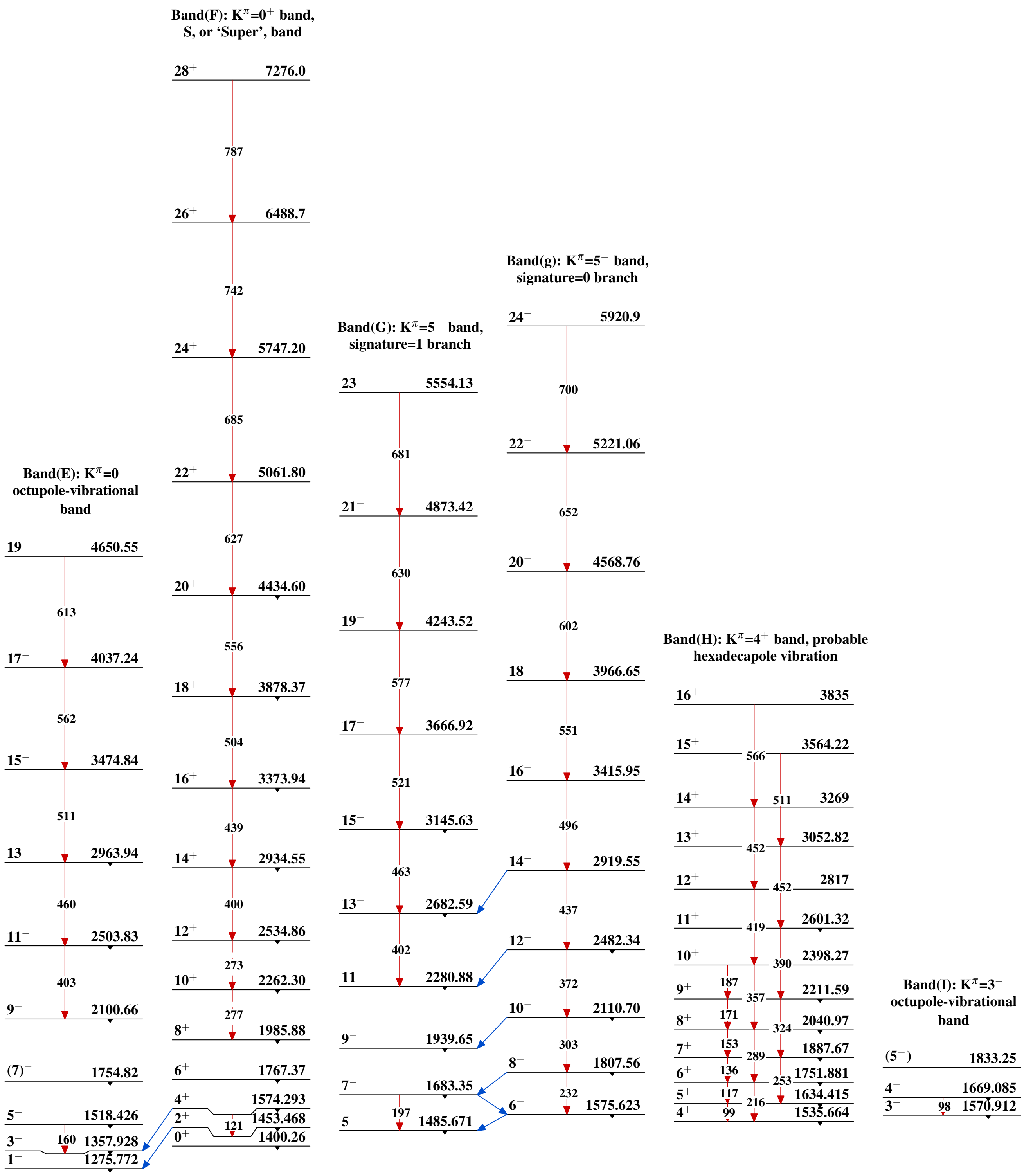
$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas



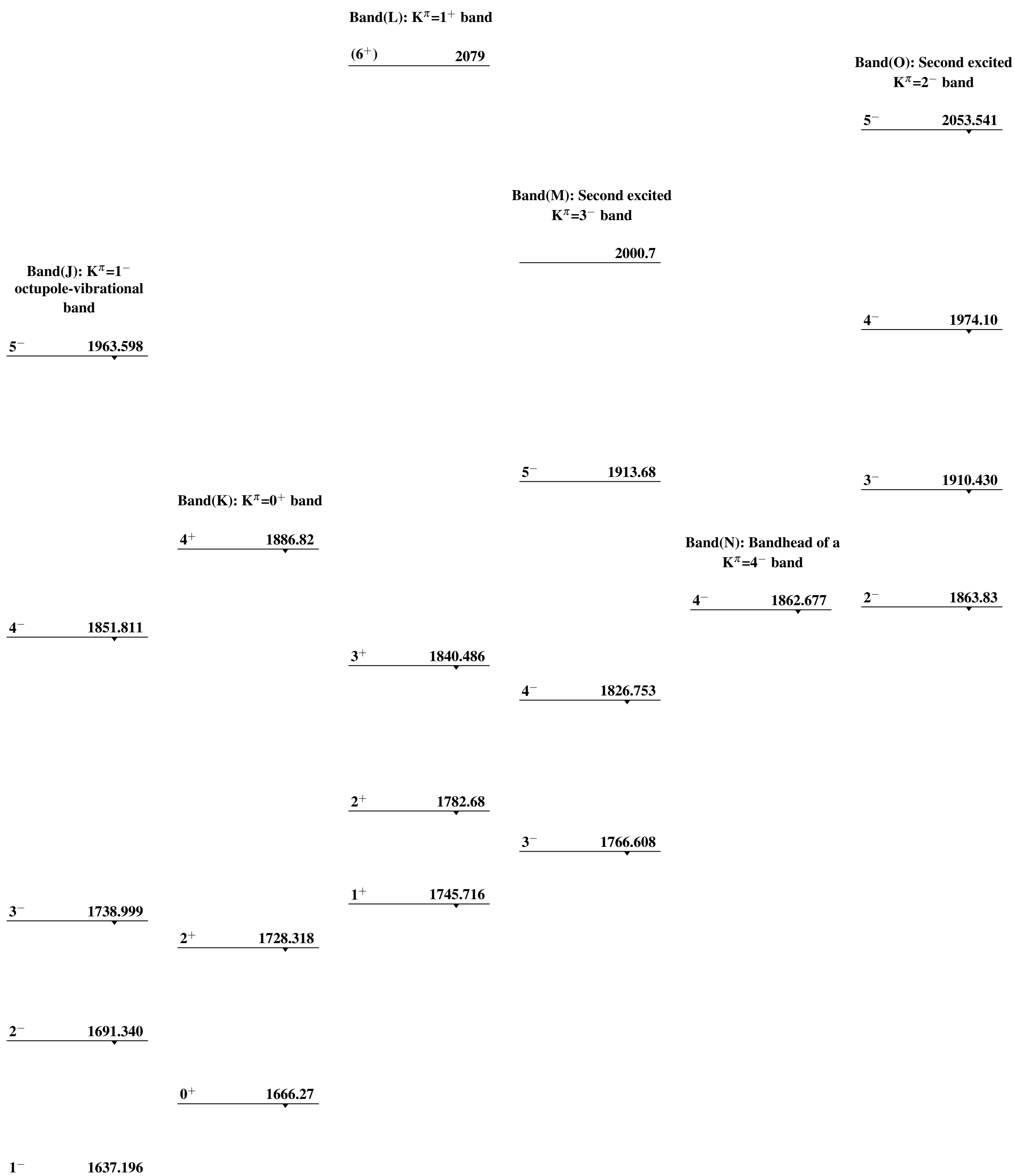
$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas (continued)



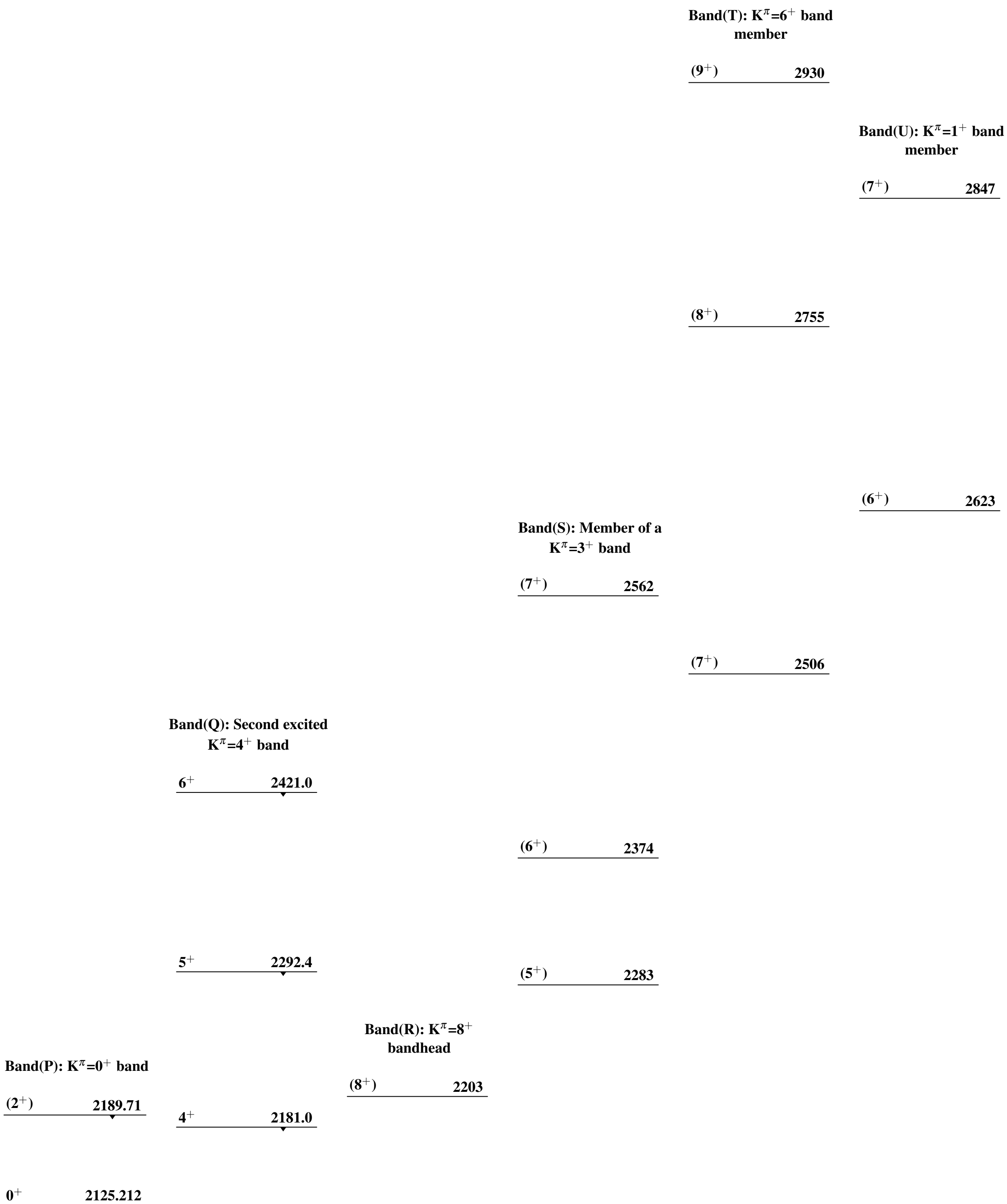
$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas (continued)



$^{162}_{66}Dy_{96}$

Adopted Levels, Gammas (continued)



$^{162}_{66}Dy_{96}$